Report No.: 8003-079

FINAL EXPANDED SITE INSPECTION REPORT
ALSY MANUFACTURING, INC. / MAGNUSONICS DEVICES, INC.
HICKSVILLE, NASSAU COUNTY, NEW YORK

PREPARED UNDER

WORK ASSIGNMENT NO. 019-2JZZ
CONTRACT NO. 68-W9-0051

SEPTEMBER 20, 1993

VOLUME 3 OF 3

286082

REFERENCE NO. 25

MALCOLM PIRNIE, INC.	PROJECT NOTES

To: Alsy/ Magnusonics Devices File	**Date:** September 16, 1993
From: Frederick V. Loneker	**Project #:** 8003-079
Subject: Magnusonics Phase II Report	**Site Name:** Alsy/ Magnusonics Devices

During a recent file search of the Nassau County Department of Health files for the Magnusonics Devices Site, the attached portion of the Phase II Investigation completed by Richard D. Galli, P. E., P. C. for the NYSDEC was obtained. Although it is not a complete document, it does contain all relevant information regarding the Investigation. (Note: During a file search of NYSDEC- Region I files in November, 1992, this report was not found)

Phase II

1.0 EXECUTIVE SUMMARY

In accordance with the New York State Department of Environmental Conservation (NYSDEC) Consent Order #WP-045-83, **Richard D. Galli, P.E., P.C.** has performed a soils and groundwater investigation at 290 Duffy Avenue, Hicksville, Nassau County, New York (site #1-30-031). The site was formerly operated by Magnusonic Devices, Inc. and formerly owned by Milton S. Stevens, and is presently owned by International Clinical Laboratories, Inc.

The field operations and laboratory analyses were undertaken pursuant to the NYSDEC approved workplan and of NYSDEC Phase II protocols. During the actual field investigation, representatives of the NYSDEC, Division of Environmental Enforcement, White Plains, New York, were present to oversee field operations.

The performance of the ten exploratory borings and boring/installation of six monitoring wells was completed by February 2, 1989 by Marine Pollution Control. A total of 202 soil samples were collected during the field investigation. Thirty-three (33) samples were delivered to NYTest Environmental, Inc. on a daily basis (due to sample holding time limitations) for laboratory analysis. The complete data package for the laboratory analysis of the soil samples was available to **Richard D. Galli, P.E., P.C.** by March 20, 1989. On March 28, 1989, the six monitoring wells were sampled, and samples delivered to NYTest Environmental, Inc. The data package for the have been cited for disposal of hazardous materials to soils and groundwater and are currently listed on the NYSDEC Inactive Hazardous Waste Disposal Sites in New York State, April, 1989. Regulatory agency files and regional groundwater studies indicate a significant potential for contribution from off-site sources of contamination to groundwater resources within the subject site by facilities upgradient of the Magnusonic Devices site.

Site topography is essentially flat, having a slope of less than 3 percent. No naturally occurring surface water bodies exist within the site area. Site soils consist of the Urban Land (Ur) series. The subject site is almost entirely paved.

According to records available to **Richard D. Galli, P.E., P.C.**, Magnusonic Devices was the sole manufacturing industrial facility to have used the subject site. All manufacturing activities at the Magnusonic Devices site ceased prior to May, 1987.

Laboratory analysis completed on 33 soil samples selected out of a total of 202 collected soil samples, indicate that contamination of soils within the Magnusonic Devices property appears to be limited to two areas which may require further investigation to determine the extent of contamination and to assess the need for remediation.

The exploratory borings completed in the north portion of the subject site, adjacent to the Long Island Railroad (LIRR) property, indicate that some portion of the area has been subjected to disposal and burial of non-homogeneous substances that could be generally characterized as an ash-like material mixed with a reddish colored sludge material with small portions of copper wire, metal, paper and wood. Laboratory analysis of two samples of the referenced material indicated the presence of heavy metals such as iron, lead, magnesium, zinc and copper in concentrations greater than 25 mg/kg and arsenic and chromium at lower concentrations. Several semi-volatile compounds were detected in two samples, but at concentrations below given detection limits.

Exploratory boring B-10, placed through a storm drain which received plating waste effluent during Magnusonic Devices' operations, indicated the presence of a sludge layer at least 6 feet in thickness. A sample of this sludge material indicated the presence of chromium, hexavalent chromium, copper, lead, magnesium, nickel and zinc. Several volatile organic compounds including 1,1 dichloroethane, tetrachloroethane, toluene, and xylene were found at detectable levels. The semi-volatile compound, 1,2,4 trichlorobenzene, was detected at 200,000 ppb. In addition, the semi-volatile compound bis(2-ethylhexyl) Phthalate was detected at 46,000 ppb. Acetone also was detected at trace concentrations but is believed to be attributable to sample bottle contamination because acetone was detected in the trip and field blanks. A total of twenty (20) tentatively identified compounds (TIC's) were observed within the sample collected during the completion of exploratory boring B-10, all at estimated values (see Laboratory Data Sheets for B-10, 2-4 feet, Appendix E).

The analysis of soil samples collected during the installation of the six monitoring wells and from 6 of the 10 exploratory borings, B-1 through B-6 (see site plan) indicated no elevated concentrations of contaminants, with several minor exceptions which were determined to be the result of field and/or laboratory procedures. Trace concentrations of acetone and methylene chloride were suspected to be attributable to sample bottle contamination. Phthalate compounds detected in the analysis were suspected to be the result of disposable gloves used in the field and laboratory.

Metals analysis of these samples indicated the presence of metals at concentrations that are considered natural background levels.

Laboratory analysis completed on the groundwater samples collected from the monitoring well network indicates low level groundwater contamination is present within all of the subject site monitoring wells, upgradient and down gradient of the two plating waste discharge points within the subject site. Down-gradient monitoring wells indicate somewhat increased levels of 1,1,1-trichloroethane, chromium, and copper, when compared to analytical results for the upgradient monitoring wells. However, according to information concerning groundwater quality within the Hicksville area, the concentrations of contaminants identified in the groundwater samples are typical of residual contamination persistant within the Upper Glacial aquifer for this part of Nassau County.

The concentrations of detected contaminants identified in groundwater samples are below NYSDEC guidelines for Class GA (groundwater), outlined in NYCRR Part 703.5 (3), except for 1,1,1 trichloroethane. The guidance value of 50 ug/l for 1,1,1-trichloroethane is surpassed in the sample collected from monitoring well MW-4 at an indicated concentration of 72 ug/l.

The draft HRS (Hazardous Ranking System) score calculated by **Richard D. Galli, P.E., P.C.** for the Magnusonic Devices site is 41.92. The HRS score was calculated according to the EPA HRS Users Manual, published in 1982, and based on the soils and groundwater data obtained during the Phase II Investigation. The Draft HRS Score Sheets and Documentation Records were submitted independent of the June, 1989, Draft Phase II Report.

The EPA is proposing to revise the HRS ranking system (Federal Register, Vol. 53, No. 247) to make the HRS more accurate in assessing the relative potential risk of subject sites.

Sampling of the east side storm drain, location of boring B-10, and the monitoring well MW-3, directly down-gradient of the storm drain, was completed on December 1, 1989 in order to confirm our disprove the presence of phthalate compounds previously detected in samples collected from the two referenced areas during the January/March 1989 Phase II Field Investigation.

The additional information obtained through the December 1, 1989 sampling and analysis indicates that several phthalate compounds are present within sediments located in the east side storm drain. Analysis of the December, 1989 sediment sample confirms the presence of 1,2,3-trichloroebenzene within the storm drain sediments.

The semi-volatile analysis completed on the groundwater sample, collected from monitoring well MW-3 on December 1, 1989, does not confirm the presence of phthalate contamination being present within groundwater beneath the subject site.

Research into the uses and occurrences of phthalate compounds detected in groundwater sample MW-3, December 1, 1989, are components of polyvinyl chloride (PVC). It is possible that the PVC well casing and screen, used in the construction of monitoring well MW-3, are contributing to the contamination of groundwater samples recovered from monitoring well MW-3.

The Draft HRS score of 41.92 will not be altered given the additional information obtained by the December 1, 1989 sampling.

2.0 PURPOSE OF INVESTIGATION

The investigation was conducted to assess the vertical and areal extent of soil and/or groundwater contamination at the site including contamination resulting from improper disposal of hazardous material by Magnusonic Devices, Inc. The specific hazardous materials and relative concentrations of such materials within soils and groundwater distributed throughout the subject site was determined. The information obtained by this investigation is intended to enable the NYSDEC to assign the subject site its proper Hazardous Waste Site Classification, and, according to paragraph 7 (b) of the Consent Order, to determine whether remedial action is necessary at the site.

3.0 SCOPE OF WORK

The activities described in sections 3.1-3.13 below were performed during the Phase II Investigation at the Magnusonic Devices site.

3.1 Collection and Review of Background Information

Published literature of Long Island geology, hydrology, soils and climate were collected and any useful or pertinent information regarding the investigation was incorporated into this report (see Appendix G - a list of references).

Additionally, regulatory agencies files on surrounding properties such as Alsy Manufacturing were reviewed to determine the likelihood of off-site contamination migration onto the Magnusonic Devices Site.

3.2 Exploratory Soil Borings

Between January 12 and February 2, 1989, a total of ten exploratory borings were completed at various depths in three general locations at the subject site (see plot plan, Figure 1.1). Borings 1 through 6 were placed around the two abandoned leaching pools to a depth of 25 feet in the back area of Magnusonic Devices. A total of three soil samples per boring were sent for laboratory analysis. Borings 7, 8, and 9, which were distributed across the back portion of the parking lot approximately 40 feet from the LIRR property, were taken to a depth of 25 feet. Initially, the workplan called for the selection of one (1) soil sample for laboratory analysis from all soil samples collected from borings B-7, 8, 9, but a second sample was also sent due to the nature of the material encountered. Boring B-10 was placed through the storm drain on the east side of the subject site building in which plating wastes were discharged to a total depth of ten feet. One (1) soil sample from this boring was delivered to NYTest Envrionmental Inc. for analysis.

The sample selection for laboratory analysis was based on criteria outlined in Section 3.4.

All cuttings produced during the boring of B-1 through B-8 were drummed as a precautionary measure. Consistent with the NYSDEC requirements for drumming of soil, it was determined that cuttings from exploratory boring B-9 did not have to be drummed. Cuttings from B-10 were not recoverable, as the boring was at the bottom of the storm drain. Representative samples were collected from the drummed soil to determine how the material would be removed from site and disposed.

After the completion of each boring, the bore hole was filled with cement grout to surface level.

3.3 Monitoring Well Installation

The installation of the six monitoring wells was completed from January 13 to January 30, 1989 with few complications or delays. All well installations and construction techniques were performed in strict accordance with the specifications presented in the approved Phase II workplan with the exception of well casing/screen diameter. The well casing/screen diameter was changed from the initially approved four inch (4") diameter to two inch (2") in order to tremie the grout mixture. NYSDEC had given approval of this change prior to actual monitoring well installation.

Depth to groundwater at the subject site ranged between 59.3 to 61.5 feet. All wells were installed to a depth of approximately 68.5 feet. Standing water within each well ranged between 7.5 and 8.9 feet. It must be noted that standing water levels will seasonally fluctuate.

Continuous split spoon soil samples were recovered during the boring of the first monitoring well, MW-3, to determine if there were any significant stratigraphic changes within the subject site, such as an impermeable clay strata. No significant strata changes were encountered (see Figure 6.1 Sedimentary Cross Section). At the remaining five wells, split spoon samples were recovered every five feet.

Two split spoon soil samples from each monitoring well boring were selected for laboratory analysis based on criteria outlined in Section 3.4.

3.4 Soil Sample Collection, Preparation, Description, P.I.D. Screening

A total of 202 split spoon soil samples were recovered, placed in sample containers and screened for total volatile organic concentrations using a Photo Ionization Detector (P.I.D.), namely an HNU, Model PI-101. Of the entire 202 samples, 33 were delivered to the laboratory for analysis.

Soil samples were recovered during the installation of monitoring wells by the method discussed in Section 3.3.

Every split spoon sample recovered was treated as if it were to be sent to the laboratory for CLP analysis. This included the use of disposable surgical gloves, decontaminated stainless steel spatula/spoons and the use of three different types of sample containers, 40 ml vials, 350 ml amber jar, 350 ml wide mouth jar (all with teflon cap seals). All samples were screened using an HNU, PI-101, in the procedure described in the approved workplan (see Appendix B, P.I.D. Data).

After all split spoon soil samples were recovered during the course of each day, the number of soil samples selected for laboratory analysis was determined by the following criteria:

- Approved workplan, Sec. 4.1, 4.2, 4.3, Table 2
- Recorded HNU reading (highest reading was selected)
- Depth and location (most samples collected at the groundwater interface were selected)
- Physical appearance of sample which may indicate contamination such as discoloration
- Agreement of NYSDEC representative and Hydrogeologist from **Richard D. Galli, P.E., P.C.**

A total of 33 soil samples were selected for CLP laboratory analysis (see Table 6.1). The approved workplan required the selection of 32 soil samples for analysis. An additional soil sample was recovered during the boring of the exploratory borings B-7, B-8, B-9, in the back portion of the parking lot of the subject site, adjacent to the LIRR property. During the boring of B-7, B-8, B-9, fill material containing red sludge-like material, wire, ash, and other substances was encountered at B-7 (2 to 10 feet) and B-8 (2 to 6 feet). The physical appearance and nature of this material warranted the analysis of an additional soil sample.

3.5 Monitoring Well Development

Development of the monitoring wells occurred on two separate occasions. The first well development was completed on February 6, 1989 using a Geoguard gas drive pump with all monitoring wells developed to a point in which the wells yielded water with a turbidity of less than 50 NTU. All groundwater pumped during development was drummed and labeled, a total of 600 gallons. After allowing the wells to sit for one week, an attempt was made to purge the monitoring wells using hand bailers. During the operation, the agitation created by the dropping and lifting of hand bailers within the wells increased the turbidity of the standing water to an unacceptable level as determined by the NYSDEC representative for groundwater sampling.

3.7 Monitoring Well Survey

A licensed surveyor, Jerome DeAmaro, completed a survey of all existing monitoring wells on the property; the six (6) Phase II and the four (4) previously installed wells. The elevations are in the nearest one-hundredth (0.01) of a foot in accuracy and based on Nassau County Datum. Additionally, locations of the six (6) Phase II monitoring wells, the four (4) previously installed wells and the ten (10) exploratory borings were located in relation to the Magnusonic Devices building (see plot plan, Figure 1.1).

3.8 Groundwater Elevation Monitoring

Static water levels were measured periodically within all existing wells, 10 total, over the course of approximately four months. The measurements were recorded using a sonic well depth indicator to the nearest one hundredth (0.01)foot. Depth to water measurements are given in Table 6.7. Using these measurements, along with the survey data, water table elevations were calculated in relation to mean sea level (MSL), see Table 6.8.

3.9 Laboratory Analysis of Selected Samples

NYTest Environmental performed analysis on 7 groundwater and 33 soil samples according to given EPA methods and within given CLP guidelines. Data sheets for soils analysis are given in Appendix E, and for groundwater Appendix F. Discussion of the laboratory analysis is presented in Sections 6.4 (Soil) and 6.6 (Water).

3.10 Development of Sedimentary Cross-Section for Subject Site

Using the boring logs produced during the boring operations at the subject site, a cross sectional diagram was produced, Figure 6.1. The sedimentary cross-section provides information on subject site sediments to a depth of approximately 69 feet below grade.

3.11 Development of Groundwater Contour Map

Two groundwater contour maps were produced using the groundwater elevation data, Figures 6.2, 6.3. From the contour maps, hydraulic gradients were graphically derived and used to calculate horizontal groundwater flow rates through the Magnusonic Devices property.

3.12 Geotechnical Evaluation of Sediment Sample

A soil sample collected from the screened interval of monitoring well MW-3 was mailed to Geotechniques Associates on 3/4/89 to determine porosity and permeability of the sample. This information is invaluable in determining accurate hydrologic parameters for the subject site.

3.13 Survey of Adjacent Properties/Local Water Quality

To determine the potential of off-site contribution to, primarily, groundwater and, to a lesser extent, soil contamination at the subject site, site inspections of surrounding properties and research into various regulatory agencies files was completed.

4.0 SITE HISTORY

The site located at 290 Duffy Avenue, Hicksville, New York consists of approximately 3 acres. In 1984 the site was listed by the New York State Department of Environmental Conservation (NYSDEC) as a "suspected inactive hazardous waste disposal site".

The subject site was at one time part of a larger parcel of property (Sec. 11, Block G, Lot 18), but was subsequently subdivided in 1955. According to zoning records of the Nassau County Clerks Office, the subject site was zoned for residential use until 1947. After 1947 several organizations owned the subject site, including:

- Master Craftsman, Inc., 1947
- Long Island Lighting Company, 1947-48
- W.J. Sloane, 1948-50
- Balatem Corporation, 1950-61
- Milton S. Stevens, 1961-86
- Present owners: International Clinical Laboratories

According to records prior to 1961, the subject site remained primarily undeveloped and uses of the property are unknown. Hicksville Public Library records indicate that the adjacent property, west of the subject site, presently Oyster Bay Sand and Gravel, and north of the subject site, presently Twin County Recycling, have been extensively sand mined in the past. Sand mining operations have been discontinued at Oyster Bay Sand and Gravel. During the boring of the monitoring well network at the Magnusonic

Devices site very little, if any, stratagraphic correlation of sediments was observed. This may indicate that the subject site had actually been sand mined, excavated, and backfilled.

In the early 1960's, it is believed that Mr. Milton S. Stevens had the present day structure built on the property. During the time period between 1962 to the early 1970's, he used the property for a direct mail business. He leased the property to Magnusonic Devices in 1977; Magnusonic Devices was the only industrial facility to conduct manufacturing operations on this property according to available records.

Magnusonic Devices manufactured computer tape heads, an operation which generated hazardous and nonhazardous wastes. Manufacturing processes at Magnusonic Devices consisted of 1) assembling of head housings, 2) photo etching of thin sheet metal (brass and copper) laminates in the fabrication of miniature coil wound cores, 3) electroplating tape heads for magnetic shielding and wear resistance with copper and chrome, 4) assembling operations, such as coil winding, laminating, soldering, potting, lapping and polishing, and 5) various electrical and mechanical inspection operations to maintain product quality. After Magnusonic Devices ceased operations, stored hazardous wastes were removed from the site by licensed haulers.

NYSDEC documents indicate that during the period between 1981-1985, Magnusonic Devices discharged solvents and metals in concentrations in excess of regulated limits into two leaching pools at the back of the facility. Numerous violations of State Pollutant Discharge Elimination System (SPDES) requirements were cited by the NYSDEC. Discharged chemicals included lead, copper, nickel, acetone, volatile halogenated solvents, Freon TF, 1,1,1-trichloroethane, trichloroethylene, methylene chloride, and, possibly, other organic compounds.

Magnusonic Devices utilized a physical-chemical treatment system which handled rinsewaters from their plating and chemical milling operations and discharged the treated wastewaters into the two leaching pools in the rear of the building. Sometime in 1986, the facility was connected to the Nassau County Sewer System. Their industrial wastewater discharge did not have a Pretreatment Permit.

The wastewater treatment facility was located at the rear and northwest corner of the building. A hazardous waste drum storage area in an indoor 15' x 25' bermed and caged area was located adjacent to the wastewater treatment facility. The floor of this area was constructed of level concrete without any drains or sumps.

The plating area was located in the east side of the subject building. The floor of the plating room was contaminated with heavy metals and was disposed of as a hazardous waste during closure of the former hazardous waste management operations. The floor was constructed of concrete and had one drain which drained to a storm catch basin, but the drain was reportedly plugged more than five (5) years ago. A soil sample was selected for laboratory analysis from this storm drain, which is on the east side of the building.

The developer etch area was located in the western rear portion of the building. The concrete floor was badly etched from the use of ferric chloride in the developing process; however, the concrete floor corings taken showed that the floors were nonhazardous and did not require disposal as a hazardous waste.

Richard D. Galli, P.E., P.C. was verbally informed by a NYSDEC official during the Phase II workplan development (1988) that there have been reports to the Nassau County Department of Health (NCDH) of Magnusonic Devices disposing of an assortment of materials in the back portion of the property, adjacent to the LIRR property; though no actual documents concerning this matter were received. According to the reports, the material was dumped into a shallow pit and later paved over with asphalt.

During the boring activities in the area of suspected dumping, material was encountered which was tentatively identified as Ferric Hydroxide Sludge. Laboratory analysis of samples of the fill material encountered indicated elevated concentrations of iron and elevated pH values.

Typical hazardous materials/wastes utilized or generated by Magnusonic Devices included the following:

*Ferric Hydroxide Sludge

*Ferric Chloride

*Developer Solution

*Chrome and Copper Plating Solutions

*Coolants and Hydraulic Oils

*Solvents - 1,1,1 Trichloroethane,
Freon TF, Acetone

Manufacturing at Magnusonic Devices ceased prior to May, 1987. The closure plan for the interior of the building was approved by the NYSDEC Central Office, Albany, New York, by December, 1987.

5.0 REGIONAL ASSESSMENT

5.1 Climate

Although greatly modified by the Atlantic Ocean, the climate of Nassau County is dominated by continental influences because air masses and weather systems affecting Long Island have their origin principally over the land areas of North America. The annual average temperature is 52.9°F (see Table 5.1). Precipitation is generally evenly distributed throughout the year (Soil Survey of Nassau County, New York, 1983). The average annual precipitation is 43.65 inches and the mean annual lake evaporation is 31 inches. Thus, net precipitation is 12.65 inches. The one year 24 hour rainfall is approximately 2.75 inches.

5.2 Geologic Setting of Long Island

Long Island is included in the Atlantic Coastal Plain Physiographic. Geologically, Long Island is composed of unconsolidated sediments of Pleistocene and Cretaceous age. The unconsolidated sediments overlie relatively impermeable crystalline bedrock of Precambrian age, forming a clastic wedge that thickens in a southward direction. A generalized cross section of Long Island is shown in Figure 5.0 illustrating the three major aquifers, the Upper Glacial, Magothy, and the Lloyd Sand member of the Raritan Formation that comprise the water resources of Long Island.

The bedrock surface, which is approximately 850 feet below sea level within the study area, is considered the bottom hydrologic boundary of the groundwater flow system of Long Island.

and silty and clayey sand are common throughout the unit. The Lloyd aquifer is overlain and generally overlapped by the clay member of the Raritan Formation.

The Lloyd aquifer has moderate horizontal hydraulic conductivity, estimated to be 40 ft/day (1.4×10^{-2} cm/sec). However, individual sandy and gravelly beds within the aquifer may have much higher values.

The Raritan unit consists mainly of deltaic clay and silty clay beds and some interbedded sand. The unit is characterized as having a low vertical hydraulic conductivity, (approximately 10^{-3} ft/day or 3×10^{-6} cm/sec), thereby acting as a confining layer between the Lloyd Sand member and the overlying Magothy aquifer.

The Magothy Formation and Matawan Group comprise the uppermost remaining deposits of the Cretaceous Period in the study area. This unit was severely eroded from Late Cretaceous to the time of deposition of the Jameco Gravel. The deposits of the Magothy Formation and Matawan Group, like the earlier Cretaceous deposits, are of continental origin and are mostly deltaic sand and silty sand with lesser amounts of interbedded clay and silt. The unit commonly has a coarse sand and in many places a gravel basal zone 25 to 50 feet thick.

The Magothy aquifer has been estimated to have an average horizontal hydraulic conductivity of 50 ft/d (1.7×10^{-2} cm/sec), but as in the Lloyd aquifer, individual sandy and gravelly beds may have values four to five times higher.

The Cretaceous deposits were covered by continental and marine sediments during the Pleistocene. The Pleistocene sediments which were deposited over the Cretaceous sediments, including the Jameco Gravel, Gardiners Clay and Upper Pleistocene Deposits, consists of both deltaic and lagoonal marine sediments of interbedded sand, silt, and clay. These deposits were derived predominantly from the meltwaters of large continental glaciers.

The Upper Pleistocene deposits are Wisconsin in age and of glacial origin. The deposits unconformably overlie all underlying units and are found throughout Nassau County's surface. The glacial deposits found within the Hicksville area of Nassau County consist primarily of ground moraine deposits and glacial outwash. The moraine deposits are typically unsorted and unstratified mixture of clay, sand, gravel, and boulders. Glacial meltwater carried sand and gravel in broad coalescing sheets to form an outwash plain that extends from the terminal morain south to the coast forming the south shore of Long Island.

The Upper Glacial aquifer of Nassau County within the Hicksville area consists of sand beds and sand-and-gravel beds which are moderately to highly porous. Porosities of 30 to 40 percent are common (Veatch, et al 1906) and are highly permeable capable of yielding large quantities of water to wells. Horizontal hydraulic conductivity of glacial outwash has been estimated to be 270 ft/d (9.5 X 10 -2 cm/sec). Public water supply and other high capacity wells tapping outwash deposits have commonly yielded as

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much as 1,500 gal/min, with specific capacities ranging from 50 to 60 gal/min/ft (Soren, 1971). Terminal and ground-moraine deposits generally have much lower conductivity than outwash deposits because they include clay and silt and are not well sorted. Coarse sand and gravel lenses within the moraine deposits may yield significant amounts of water, but locations of such lenses are scattered and unpredictable. Hydraulic Gradient of the Upper Glacial aquifer corresponds with the slope of the water table. Values of 0.0021 to 0.0016 ft/ft are typical for South Shore locations, outwash deposits (Kimm and Braids, U.S.G.S. Prof. Paper 1085).

5.4 Groundwater Flow

The aquifers of Nassau County are hydraulically interconnected. Layers of clay and silt within an aquifer, or clayey and silty units between aquifers, confine the ground water, but these units do not completely prevent the vertical movement of water through them.

On the average, the vertical hydraulic conductivity and rates of vertical flow through the Upper Glacial aquifer are greater than those of the other hydrogeologic units in Nassau County. The vertical movement of water through the Magothy aquifer is impeded by intercalated lenses and beds of clay and silt; but, locally, vertical movement through the aquifer is facilitated by the lateral discontinuity of clay and silt beds. Vertical movement of water through clay and silt beds of the Magothy aquifer is very slow. The Raritan clay effectively confines water in the underlying Lloyd aquifer because the Raritan Clay is thick and is of very low hydraulic conductivity. Movement through the bedrock is negligible (Jensen and Soren, 1974).

(Getzen, 1977) estimated that the ratio of vertical hydraulic conductivity to horizontal conductivity in the Upper Glacial aquifer ranges from 1:10 to 1:24 and that in the Magothy aquifer, the ratio ranges from 1:30 to 1:60.

Where the Upper Glacial aquifer lies directly on sandy beds on the Magothy aquifer, good vertical hydraulic continuity exists between the two aquifers. Head losses between the water table in the Upper Glacial aquifer and the base of the Magothy aquifer in the area of the main groundwater divide in western Suffolk County (a vertical distance of as much as 900 feet) in 1968 generally were less than 2 feet. Furthermore, in areas of Long Island where groundwater withdrawals from both the Upper Glacial and the Magothy aquifers are large, the cones of depression in their water-level surfaces caused by pumping are similar in areal extent and configuration. These observations confirm the high degree of hydraulic continuity between the two aquifers in many parts of Long Island (Jensen and Soren).

Groundwater is recharged by natural means through precipitation which infiltrates through Pleistocene sediments eventually being intercepted by the Upper Glacial aquifer.

Recharge of underlying aquifers primarily takes place at the center of Long Island, a zone consistent with the regional groundwater divide, through vertical movement of groundwater through the Upper Glacial aquifer. Recharge 24 to the Lloyd aquifer results from downward movement of water from the Magothy aquifer and from the Upper Glacial aquifer through the Raritan Clay.

The main recharge area of the Lloyd aquifer seems to be in the Ronkonkoma area. Head losses across a thickness of 150 to 180 feet of Raritan Clay in the county generally ranged from 6 to 42 feet in 1968 (Jensen and Soren, 1974).

Under natural conditions, groundwater within the aquifers of Nassau County generally flows horizontally away from the zone of recharge, in a northerly direction north of the regional groundwater divide, and in a southerly direction south of the divide, see Figure 5.2. Discharge of groundwater within the Upper Glacial aquifer primarily occurs through surface streams and tidal marshes. Discharges of groundwater from underlying aquifers occurs through vertical movement of groundwater to one of several salt water bodies surrounding Nassau County. Figure 5.3 illustrates these flow relationships.

5.5 Groundwater Quality - Hicksville Area

Within a one and one-half mile radius of the subject site, there are at least twelve (12) water supply wells and three (3) monitoring wells in use. These wells are identified below:

Public Supply wells:

N3553, N7561, N9212, N5336, N3552, N7030, N8526, N6192, N6193, N9180, N3878, N3953

Monitoring Wells:

N9928, N9927, N9018

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The wells closest to the site are monitoring well N9928, approximately one and one-quarter miles northeast, and Water Supply Wells N3878 and N3953, approximately one and one-half miles north of the site (see Figure 5.4, Groundwater Wells, Hicksville Area).

Water Supply Wells N3878 and N3953, which are screened in the Magothy aquifer, and Monitoring Well N9928, screened in the Upper Glacial aquifer, are upgradient of the Magnusonic Devices site and exhibit concentrations of organic and inorganic constituents. According to Nassau County Department of Health lab analysis, 2.10 ug/l of 1,1,1-trichloroethane was detected at N3953 on 5/25/88, and 12.0 ug/l at N3878 on 2/25/86.

Additionally, NCDH lab analysis records indicate trichlorotriflouroethane present at trace concentrations in N3953 and N3878 with the most recent sampling completed on 5/26/88. A significant increase in concentration was seen at N9928 from <1 to 38.0 ug/l of tetrachlorethylene from 12/5/83 to 6/29/88. The NYSDEC groundwater guidance value for tetrachloroethylene is 0.7 mg/l (NYSDEC T.O.G.S., 1987).

Concentration of chloride ions at wells N3953 and N9928 were 18.0 mg/l on 5/25/88 and 27.1 mg/l on 6/29/88, respectively. The NYSDEC groundwater standard for nitrate is 10.0 mg/l. Nitrate concentrations at N9928 were 14.0 mg/l on 6/29/88.

A study of Volatile Organic Levels in Nassau County monitoring wells by aquifer was conducted by the Nassau County Department of Health from October 1, 1983 to September

30, 1984. Of 115 wells screened in the Glacial aquifer, VOC levels were detectable in 68% of the wells; 10% had levels 50 ug/l or greater. Of a total of 329 wells screened in the Magothy aquifer, 30% demonstrated detectable VOC levels and 6% had levels of 50 ug/l or greater. This evidence confirms a relatively greater contamination of the Upper Glacial aquifer, as compared to the Magothy and Lloyd aquifers, which makes it unsuitable for public water supply development; as a result, few water supply wells are screened in the Upper Glacial aquifer.

As mentioned in the Magnusonic Devices Workplan, July, 1988, several wells owned by the Hicksville Water District which are northeast of the subject site are contaminated with volatile organics. Consequently, air stripping systems were installed to lower concentrations of such contaminants and meet New York State Drinking Water Standards. Analysis of a tap water sample collected from a fire hydrant located on Duffy Avenue, part of the Hicksville Water District, indicated the presence of 1,1,1-trichloroethane at a concentration of 5.0 ug/l.

There are several types of industries which use, store, and generate hazardous materials which are presently in operation or which have operated in the West Hicksville area. According to the NYSDEC publication, <u>Inactive Hazardous Wastes Disposal Sites in New York State, Volume 1, April, 1989</u> and a report completed by Nassau County Department of Health in conjunction with Dvirka and Bartilucci Consulting Engineers, <u>Investigation of</u>

Contaminated Aquifer Segments, Nassau County, New York, June, 1989, there are a number of companies that have been cited for discharges to soils and/or groundwater within the Hicksville area. Table 5.2 is a summary of industrial facilities which have been identified in the NYSDEC and NCDH reports as discharging hazardous materials, including 1,1,1-trichloroethane, to soils and/or groundwater or as being possible causes of such discharges. Figure 5.5 illustrates the general location of the facilities listed in Table 5.2. The facilities listed in Table 5.2, with the exception of Alsy Manufacturing which is directly adjacent to the east side of the Magnusonic Devices site, are all upgradient of the Magnusonic Devices site.

Given the industrialized nature of the Hicksville area, the documented discharges of various hazardous materials to soils and groundwater from other facilities, and the regional flow of groundwater, there exists a high potential that off-site groundwater contamination is migrating on to the Magnusonic Devices site. This is confirmed by the fact that 1,1,1-trichloroethane, trichlorotriflouroethane, and tetrachloroethylene have been identified within monitoring and public supply wells directly upgradient of the subject site.

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6.0 SITE ASSESSMENT

6.1 Site Soils

According to the Soil Survey of Nassau County New York, published by the United States Department of Agriculture, site soils consist of the Urban Land (Ur) soil unit. Urban Land consists of areas covered by buildings and parking lots. Typical sequence, depth and composition of Urban Land soil unit are as follows:

Surface Layer:

Surface to 11 inches, black silt loam

Subsurface Layer:

11 to 15 inches, dark brown silt loam

Sub Soil:

15 to 29 inches, yellowish brown silt loam

29 to 33 inches, strong brown, very gravelly, loamy sand

Substratum:

33 to 60 inches or more, very pale brown sand and gravel

This typical description is accurate for the surface soils encountered at the subject site.

U.S.G.S. Water Resources Investigation 85-4088 (Effect of Urban Storm-Water Runoff on Ground Water Recharge Basins on Long Island, N.Y.) found various concentrations of cadmium, chromium, copper, iron, lead, manganese and zinc in basin soils. Iron, aluminum, manganese and zinc are elements that are commonly found in Long Island soils. Long Island soils are typically acidic with pH ranging from 4.5 to 6.8.

6.2 Site Topography

The Magnusonic Devices site is located in an area that has been extensively sand mined to the north and west. There is some evidence to suggest that the subject site may have been subjected to sand mining in the past. To the south of the subject site is a residential area which was used for agricultural purposes approximately 35 years ago.

As a result of the sand mining operations, the local topography has been dramatically changed. Directly to the north of the property, across from the LIRR track, are large piles of concrete debris up to 60 feet in height. As of October 1988, the property adjacent to the western border of the subject site, Oyster Bay Sand and Gravel, was an open pit up to 60 feet in depth. Some time during the fall of 1988 this open pit was partially filled.

The present topography of the local land, within a one mile radius, is generally sloping in a northeast, southwest trend, forming a subdued valley. To the south of the subject site the land is relatively subdued, gently sloping to the south. Approximately 1,000 feet west of the subject site remains an open pit, approximately 40 feet deep.

The sedimentary material encountered throughout the property typically consisted of fine to medium and coarse grained quartz sands containing various amounts of gravel. The majority of samples recovered would be considered unsorted to very unsorted in respect to grain size distribution.

Many of the sediment samples contained hematite rich rocks. Hematite, a naturally occurring form of iron oxide, is commonly found in Long Island soils. Many of the recovered split spoon soil samples exhibited a red stain as the result of hematite being present.

Several split spoon samples recovered contained silt layers at depths of 71 and 66 feet below grade at monitoring wells MW-4 and MW-5, respectively. It is considered that the silt material encountered is not continuous throughout the site, and therefore, does not form a hydrologic aquiclude. The silt-clay material made it very difficult to remove all fines from the screened interval from the affected monitoring wells during well development.

Uniform, continuous sedimentary strata of similar grain size, similar minerology and sorting were not found throughout the site though there is partial correlation of sediments identified at the site as illustrated in figure 6.1. The very unsorted nature of the sediment encountered along with no definitive strata correlation throughout the property may be the result of sand mining activities taking place on the property at one time.

The soil sample from monitoring well MW-3, collected at a depth of 64-66 ft. within the screened interval, was sent to Geo-Tech Associates for geotechnical analysis. Soil sample MW-3, 62-64 ft., was selected as being most representative of the material encountered within the saturated zone of the Upper Glacial Aquifer sediments during the monitoring well installations. The field description of MW-3 is as follows:

> coarse grained quartz sand, tan, loose with gravel (not mentioned in boring log, but sample did contain a small portion of silt sized particles)
> Blow Counts: 3-5-3-5

The geotechnical information was made available to **Richard D. Galli, P.E., P.C.** on March 31, 1989. The following information was obtained:

- Porosity: 32%
- Permeability @ 20°C: 2.7 X 10 -2 cm/sec

or

76.5 ft/day

The porosity of 32% is typical for medium to coarse grained sands with varying amounts of gravel. The laboratory result for permeability or hydraulic conductivity of 76.5 ft/day is considerably less than the estimated hydraulic conductivity of 270 ft/day given by Franke and Cohen (1970) for Upper Glacial Aquifer Sediments.

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6.4 Soil Quality

A total of 33 soil samples were selected for laboratory analysis during the drilling of 10 exploratory borings and the installation of six 6 monitoring wells. Table 6.1 is a summary of soil samples collected.

All soil samples selected for laboratory analysis were analyzed for the following parameters: TCL metals and cyanide, hexavalent chromium, TCL Volatile Organics, TCL Base Neutrals/Acid Extractibles, Phenols and pH.

A field blank was collected from a decontaminated, steam cleaned, split spoon sampler and analyzed for: TCL metals and cyanide, hexavalent chromium, TCL Volatile Organics. A trip blank was continuously transported with soil samples within a cooler, eventually being analyzed for TCL Volatile Organics. A tap water sample was collected from the steam generator used to decontaminate all "down-hole" drilling equipment; the steam generator was connected to a nearby Hicksville Water District fire hydrant. The tap water sample was analyzed for TCL metals and cyanide, hexavalent chromium, TCL Volatile Organics, TCL Base Neutrals/Acid Extractibles.

Results of the laboratory analysis of the selected soil samples are summarized in Tables 6.2, 6.3 and 6.4. The analysis indicates two locations within the Magnusonic Devices site which contain some soil contamination, primarily by heavy metals. These locations are the rear parking area adjacent to the LIRR property and the storm drain located on the east side of the building which had received plating wastes during Magnusonic Devices operation.

Laboratory analysis of soil samples collected from the remaining sample locations indicated concentrations of metals at levels typical of natural background levels with few exceptions.

Industrial Leaching Pools: During the boring of the six exploratory borings located around the two abandoned leaching pools, a total of 18 soil samples were selected for laboratory analysis.

Laboratory analysis indicates slightly elevated levels of chromium in soil samples B-2 (13-15 ft.), and B-6 (1-3 ft.), where chromium was found at 22.8 ppm and 20.2 ppm respectively. Copper was detected at slightly elevated concentrations in soil samples. In sample B-2 (11-13 ft.), the copper level was 20.7 ppm; in sample B-2 (13-15 ft.), 24.6 ppm; and B-2 (15-17 ft.), 22.5 ppm.

Iron concentrations ranged from 607 ppm to 15,090 ppm for the 18 selected samples. Concentrations of iron were consistently high throughout the subject site indicating naturally high levels of iron within the native soils. Boring logs consistently indicated the presence of hematite enriched rock in the collected soil samples, an iron oxide mineral common to Long Island soils. Several soil samples collected from around the industrial leaching pools may have slightly elevated levels of iron above natural concentrations as a result of effluent discharges.

Methylene chloride and acetone were detected at trace concentrations. No other volatile organics were detected in the samples.

Several soil samples had elevated pH values of up to 7.6. The increased pH may be the result of past discharges of neutralized waste waters draining through the soils. Phenol compounds were below given detection limits or identified at trace levels, 0.09-1.24 ppm.

Phthalate chemical compounds, primarily bis(2-ethylhexyl) Phthalate, were detected in the 18 soil samples. Within the soil sample B-4 (5-7 ft.), 9 tentatively identified phthalate compounds were detected. The observed phthalate compounds may be attributable to sample contamination by disposable gloves used in the field and laboratory.

Back parking area adjacent to LIRR property: A total of three exploratory borings (B-7, B-8, and B-9) were distributed across the back parking lot, approximately 35 feet from the LIRR property, in an east-west trending line. Exploratory borings B-7 and B-8 encountered fill material, approximately 10 feet in thickness at B-7, 5 feet in thickness at B-8. Two samples were selected for analysis due to the nature of the material encountered. The samples selected were B-7, 5-7 ft. and B-8, 3-5 ft., both of which were composed of ash-like material, glass, copper wire, red sludge material and some unidentifiable substances.

Metals analysis of the two samples indicated elevated concentrations of lead, iron, zinc, copper and lower concentrations of chromium and arsenic. No volatile organic compounds were detected in the referenced samples, aside from trace amounts of methylene chloride, attributed to sample glassware. A total of 10 semi-volatile compounds and 3 semi-volatile T.I.C. (Tentatively Identified Compounds) were detected at low concentrations in the two samples. Significant concentrations of phenol compounds were not found at this location. Elevated pH values were recorded for both samples. As stated previously, Magnusonic Devices was suspected of dumping material within this area.

East Side Storm Drain: Exploratory boring B-10 placed through the open manhole of the storm drain encountered a layer of a black sludge material approximately 6 feet in thickness at the bottom of the storm drain during continuous split spoon sampling. The sample collected at the 2 to 4 foot interval had a consistent HNU reading of 20 ppm. Consequently, it was selected for laboratory analysis.

The heavy metals analysis completed on the sample indicated elevated concentrations of: chromium, hexavalent chromium, copper, lead, nickel and zinc. Acetone, 1,1, dichloroethene, tetrachloroethane, toluene and xylene were detected at low concentrations during the volatile organic analysis. Phenol compounds were not encountered in significant concentrations within the storm drain. Due to the apparent high concentration of 1,2,4 trichlorobenzene within the sample, the semi-volatile analysis had to be rerun at a dilution factor of 1:30 in order to meet accuracy guidelines consistent with CLP protocol.

1,2.4-trichlorobenzene was detected at 200,000 ppb, and bis(2-ethylexyl) phthalate was detected at 46,000 ppb, possibly as a result of the dilution of the sample. In addition, phthlate compounds are a common sample contaminant resulting from the use of surgical gloves during sample collection and sample preparation in the laboratory. 2-methylnaphthalene was detected at an estimated concentration. The pH of the soil sample collected was recorded at 6.5.

A sediment sample was collected from the east side storm drain on December 1, 1989 and analyzed for semi-volatiles in order to confirm or disprove the presence of the previously identified phthalate compounds. Results of this analysis did confirm the presence of several phthalate compounds within the east side storm drain. Appendix H consists of a detailed discussion of the December 1, 1989 sampling and laboratory analysis.

Upgradient and Downgradient monitoring wells: A total of six (6) monitoring wells were installed on the subject site. Two (2) soil samples per monitoring well were selected for laboratory analysis, making a total of twelve (12) soil samples selected during the installation of the subject site monitoring well network. Soil samples were collected by split spoon method as explained in Section 3.3. The distribution of soil samples selected for analysis indicates that several metals are present throughout the site at significant concentrations, including: aluminum, calcium, magnesium, manganese, potassium, sodium, iron and zinc. As explained previously in Section 6.1, the listed elements are commonly found in native Long Island soils. Significant 37 differences in the metals analysis between soil samples collected from the two upgradient wells and samples from the four downgradient wells are not present. The twelve samples consistently contained significant concentrations of the eight (8) previously identified elements.

Soil Sample MW-3, 58-60 ft., indicates slightly elevated levels, above observed natural background levels for the subject site, of chromium, 28.8 ppm, and copper, 31.8 ppm. Monitoring Well MW-3 is approximately 15 feet downgradient of the eastern side storm drain that had received plating wastes during Magnusonic Devices operation until 1978. Additionally, iron was identified at a concentration of 14,600 ppm.

Trace concentrations of methylene chloride and/or acetone were identified in seven out of twelve of the soil samples collected. No other volatile organics were detected in the samples.

Phthalate compounds, primarily bis (2-Ethylhexyl) Phthalate, were detected throughout the 12 soil samples at concentrations below given detection limits. These concentrations may be attributable to glove contamination.

All soil samples collected from the monitoring wells had acidic pH values (4.8 to 6.0) typical of Long Island soils. Trace levels of phenolic compounds were detected in the soil samples.

Table 6.5 lists typical naturally occurring concentration ranges for a number of elements. Column A represents these concentrations for these elements in eastern United States soils. Concentration ranges for soil samples collected during the monitoring well borings are listed in column B. Column C presents the concentration ranges for the soil samples collected from the industrial leaching pools.

The given natural concentration ranges for elements found in eastern United States compare favorably with the concentration ranges indicated in soil samples collected from the monitoring wells and from the exploratory borings located around the industrial leaching pools. The concentrations indicated for Copper and Chromium in soil samples MW-3, 58-60 ft., and B-2, 13-15 ft., are well within the given natural concentration ranges shown in Table 6.5 for the two elements; though it is possible that the levels found in the two referenced samples may be slightly elevated above natural Long Island soil levels as the result of effluent discharges.

The concentrations of chromium (total), copper, nickel and zinc observed in the sample collected from the eastern stormdrain (B-10, 2-4 feet) and the concentrations of copper, lead and zinc observed in the two (2) samples collected from the back parking area of the subject site (B-7, 5-7 feet, and B-8, 3-5 feet) are obviously not within the given concentration ranges associated with typical eastern (continental United States) soils according to the information provided in Table 6.5, Column A.

6.5 SITE HYDROLOGY

Located south of the regional groundwater divide of Long Island, groundwater flows in a southerly direction within the underlying aquifers of the Magnusonic Devices site. Pleistocene deposits are 100 to 125 feet in thickness below the subject site (see Figure 5.1). Depth to groundwater is approximately 60 feet below grade, making the saturated thickness of the Upper Glacial aquifer at the subject site 30-55 feet. The actual contact between Pleistocene and Upper Cretaceous deposits, comprising sediments of the Magothy aquifer, is poorly defined within the Hicksville area (C. Kilburne K. Krulikas, 1980). All confining units separating the Upper Glacial and Magothy aquifers, primarily the Gardiners Clay and the "20 foot Clay", "pinch-out" or are discontinuous within the Hicksville area of Nassau County. The two aquifers are in direct contact, but hydraulic communication between the aquifers is limited due to the anisotropic* character of both aquifers and the small difference in pressure head from one aquifer to the next.

The subject site is just south of the area of Long Island termed the Deep Recharge Zone, though recharge of underlying aquifers occurs to some degree within the Hicksville area.

*anisotropic: The horizontal stratification of both Pleistocene and Cretaceous sediments creates the condition of having greater horizontal movement of groundwater than vertical, see Section 6.4.

Depth to water measurements were recorded periodically in both monitoring wells and observation wells on the Magnusonic Devices site. Well measurements were recorded to the nearest one-hundredth of a foot using a Sonic Well Depth Indicator, Model DR-759, manufactured by Soil Test, Inc. All measurements are from the top of each well casing/riser pipe at a designated point. Each designated measuring point was surveyed to Nassau County Datum, and elevations are given in Figure 1.1. Table 6.7 includes all depth-to-water measurements recorded since March, 1989.

A trend in decreasing depth to water can be observed from the month of March to the month of May. The rise of the local water table is the result of the above average precipitation in the months of April and May, 1989.

Two groundwater contour maps of the Upper Glacial aquifer (see Figure 6.2, 3/27/89 Groundwater Contour Map, Figure 6.3, 5/9/89, Groundwater Contour Map) were developed for the subject site using water table elevation values calculated from the recorded depth-to-water measurements at the ten (10) site wells, see Table 6.8.

Within an unconfined aquifer, water table contour lines also represent the potentiometric (potential energy head) surface of the represented aquifer. Direction of groundwater flow is perpendicular to the water table contour lines/potentiometric surface contour lines. Using the developed groundwater contour maps, horizontal direction of groundwater flow within the Upper Glacial aquifer is determined to be in a south to south-east direction through

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the Mangusonic Devices site. Direction of flow was calculated at 183° from magnetic north using Figure 6.2, essentially due-south. Figure 6.3 indicates direction of flow being south-southeast, 170° from mangetic north. A south to south-east direction of groundwater flow is consistent with regional flows for the Upper Glacial aquifer within the Hicksville area of Nassau County. After determining the flow direction of groundwater, the hydraulic gradient of the unconfined aquifer can be determined graphically from the groundwater contour map. Using the groundwater contour maps for the subject site, hydraulic parameters discussed previously, and a modified form of the Darcy* Equation for groundwater flow velocity, an estimated value for groundwater velocity of the Upper Glacial aquifer, can be calculated for the subject site. The modified Darcy Equation is as follows:

$$Va = \frac{kI}{n}$$ where

Va = Groundwater Velocity (Horizontal)

I = Hydraulic Gradient

n = Porosity of Sediments

k = Hydraulic conductivity of Aquifer

Hydraulic gradients of 0.0016 and 0.0018 ft/ft were calculated for the Upper Glacial aquifer within the subject site using Figures 6.2 and 6.3 respectively. These hydraulic

*Franke & Philip, USGS Prof. Paper 800-C gradients compare favorably with the values calculated in several USGS groundwater studies conducted on Long Island within outwash plain deposits. Hydraulic gradients of 0.0016 to 0.0021 ft/ft were calculated for several locations within outwash plain deposits, Upper Glacial aquifer, in Suffolk County by Kimmel and Braids, USGS Prof. Paper 1085.

According to laboratory permeability tests completed on soil sample MW-3, 62-64 ft., the sample has an observed porosity of 32% (total volume of sample). This agrees favorably with porosity values of 30% - 40% for medium and coarse grained sands with gravel (Veatch, et al 1906), see section 6.3.

According to laboratory permeability tests completed on soil sample MW-3, 62-64, the sample has an observed hydraulic conductivity of 76.5 ft/day. This is considerably less than the value of 270 ft/day given by Franke & Cohen, 1972, Table 6.5, for typical outwash plain deposits of Long Island, Upper Glacial aquifer.

Sediments encountered at the subject site are generally unsorted with respect to grain size distribution. See Section 6.3. This observed condition is uncharacteristic of sediments typically associated with the outwash plain region of Nassau County. The observed hydraulic conductivity of 76.5 ft/day is consistent with the unsorted sediments encountered at the subject site.

Using the above data and the given equation, **Richard D. Galli, P.E., P.C.** has calculated velocities of 0.38 ft/day to 0.43 ft/day for horizontal movement of groundwater through the subject site.

Vertical movement of groundwater within the Upper Glacial aquifer has been estimated to be at rates of 1/10 to 1/24 of the horizontal component of groundwater flow as discussed in section 5.4. According to the estimated ratios and the calculated horizontal flow rates, vertical flow rates of groundwater can be as much as .152 ft/day or as little as 0.016 ft/day within the Upper Glacial aquifer.

6.6 SITE GROUNDWATER QUALITY

On March 28, 1989, groundwater samples were collected from the six (6) monitoring wells installed at the Magnusonic Devices site in strict accordance with the sampling method given in the approved Field Investigation Workplan and NYSDEC Phase II protocol. The monitoring wells were purged using hand bailers the day prior to the actual sample collection; both procedures were accomplished within the required 24 hour time period. A total of six (6) groundwater samples, one duplicate sample, labeled MW-7, a field blank and trip blank were collected. During the collection of groundwater samples, the NYSDEC representative present "split" groundwater samples from monitoring wells MW-3, MW-4, MW-5.

Laboratory analysis of the site ground water included:

- -TCL Metals
- -TCL Volatile Organics
- -TCL Base Neutrals/Acid Extractables
- -Hexavalent Chromium
- -Cyanide
- -Phenols
- -Indicator Parameters (Nitrate, Chloride, Flouride, etc.)

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Base Neutrals/Acid Extractables analysis was completed on samples collected from monitoring wells MW-1, MW-3, and MW-4.

The field blank sample was analyzed for all the above parameters except indicator parameters. The trip blank sample was analyzed for volatile organics. The temperature and pH of the groundwater samples were recorded in the field immediately after collection.

Results of laboratory analysis completed on the groundwater samples are summarized in Tables 6.9, 6.10, 6.11, and 6.12. The analytical data indicates the presence of acetone, 1,1,1-trichloroethane and copper within upgradient and downgradient wells. Chromium was detected in samples collected from downgradient monitoring wells MW-3 and MW-5; 1,1-dichloroethane was identified in upgradient monitoring well MW-2.

Base Neutral/Acid Extractable parameters were not identified within the samples analyzed other than bis(2-Ethylhexyl) Phthalate, identified in groundwater sample MW-7 (duplicate sample collected from monitoring well MW-3), which may be attributable to glove contamination during sample collection. Analysis for several indicator parameters detected levels of nitrates, chlorides, flourides, etc. which are typical of groundwater quality found in urbanized areas, as explained in Section 5.5. All samples collected were at a temperature of 60°F and were acidic; pH values ranged from 5.32 to 5.60. Temperature and pH of collected samples are typical of natural Long Island groundwater quality.

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The majority of heavy metals were below detection limits, except that Chromium and Copper were detected at relatively low concentrations, and mercury and hexavalent chromium were detected at concentrations just above detection limits (mercury at 0.9 ug/l in monitoring well MW-3 and hexavalent chromium at 0.018 mg/l detected in monitoring well MW-5).

Copper was identified in upgradient monitoring wells MW-1 and MW-2 at 13.0 and 12.0 ug/l respectively. Copper concentrations of 23.0 and 21.0 ug/l* were identified in samples collected from downgradient monitoring well MW-3; concentrations of 13.0 and 11.0 ug/l were detected in downgradient monitoring wells MW-5 and MW-6 respectively.

Chromium was identified at 12.0 and 20.0 ug/l within samples collected from downgradient monitoring wells MW-3 and MW-5, respectively. Chromium was not detected in samples collected from upgradient monitoring wells.

The volatile organic compounds detected in the collected groundwater samples are listed in Table 6.10 total of four chemical species were detected. In general, all concentrations of volatile organic compounds detected in the collected groundwater samples were relatively low, the highest concentration being 72 ug/l of 1,1,1-trichloroethane identified in downgradient monitoring well MW-4.

The chlorinated hydrocarbon 1,1,1-trichloroethane, a common industrial solvent, was consistently identified

* Duplicate groundwater sample MW-7 collected from monitoring well MW-3

in all groundwater samples collected from upgradient and downgradient monitoring wells. Additionally, 1,1,1-trichloroethane was indicated to be present in the field blank at trace concentrations. The only possible explanation for the occurence of 1,1,1-trichlorethane in the field blank is that the solvent was also identified in the tap water which was used in the decontamination of all teflon bailers. Acetone was identified in the collected samples, at trace concentrations, except downgradient monitoring well MW-5. The presense of acetone may be attributable to glassware contamination since acetone was detected in the trip blank. Methylene chloride was identified in downgradient monitoring well MW-4 at estimated concentrations of 2 ug/l and 1 ug/l. A trace concentration of 1,1-dichloroethane, 5 ug/l, was indicated in upgradient monitoring well MW-2.

No semi-volatile organic chemicals were detected in any of the groundwater samples analyzed for semi-volatile organics, with one minor exception. The duplicate sample collected from downgradient monitoring well MW-3, sample labeled MW-7, was identified as having a concentration of 73 ug/l of bis(2-ethylhexyl)-Phthalate. Phthalate compounds are common sample contaminants resulting from the use of disposable latex gloves in the field and/or laboratory.

The elevated concentrations of various organic and inorganic contaminants identified in site upgradient and downgradient monitoring wells, although relatively low, indicate that contamination is present in the Upper Glacial aquifer under the Magnusonic Devices site. Detected concentrations of chromium, copper, and 1,1,1-trichloroethane are marginally greater in downgradient monitoring wells when compared to the concentrations observed in upgradient monitoring wells.

On December 1, 1989, a groundwater sample was collected from monitoring well MW-3 and analyzed for semi-volatiles in order to confirm or disprove the presence of phthalate compounds being present within groundwater beneath the subject site. Laboratory results do not confirm the presence of phthalate contamination being present within groundwater beneath the subject site. Several phthalate compounds detected in the December 1, 1989 groundwater sample are the result of laboratory contamination of the sample. Appendix H consists of a detailed discussion of the December 1, 1989 sampling and laboratory analysis.

The concentrations of detected contaminants identified in groundwater samples are below NYSDEC guidelines for Class GA water (groundwater), outlined in NYCRR part 703.5 (3), except for 1,1,1-trichloroethane. The guidance value of 50 ug/l for 1,1,1-trichloroethane is surpassed in the sample collected from monitoring well MW-4, at an indicated concentration of 59 - 72 ug/l*. The fact that 1,1,1-trichloroethane was also detected at trace concentrations in the field blank should be taken into account.

*A total of 3 volatile organic analysis runs were completed on the sample collected from montoring well MW-4.

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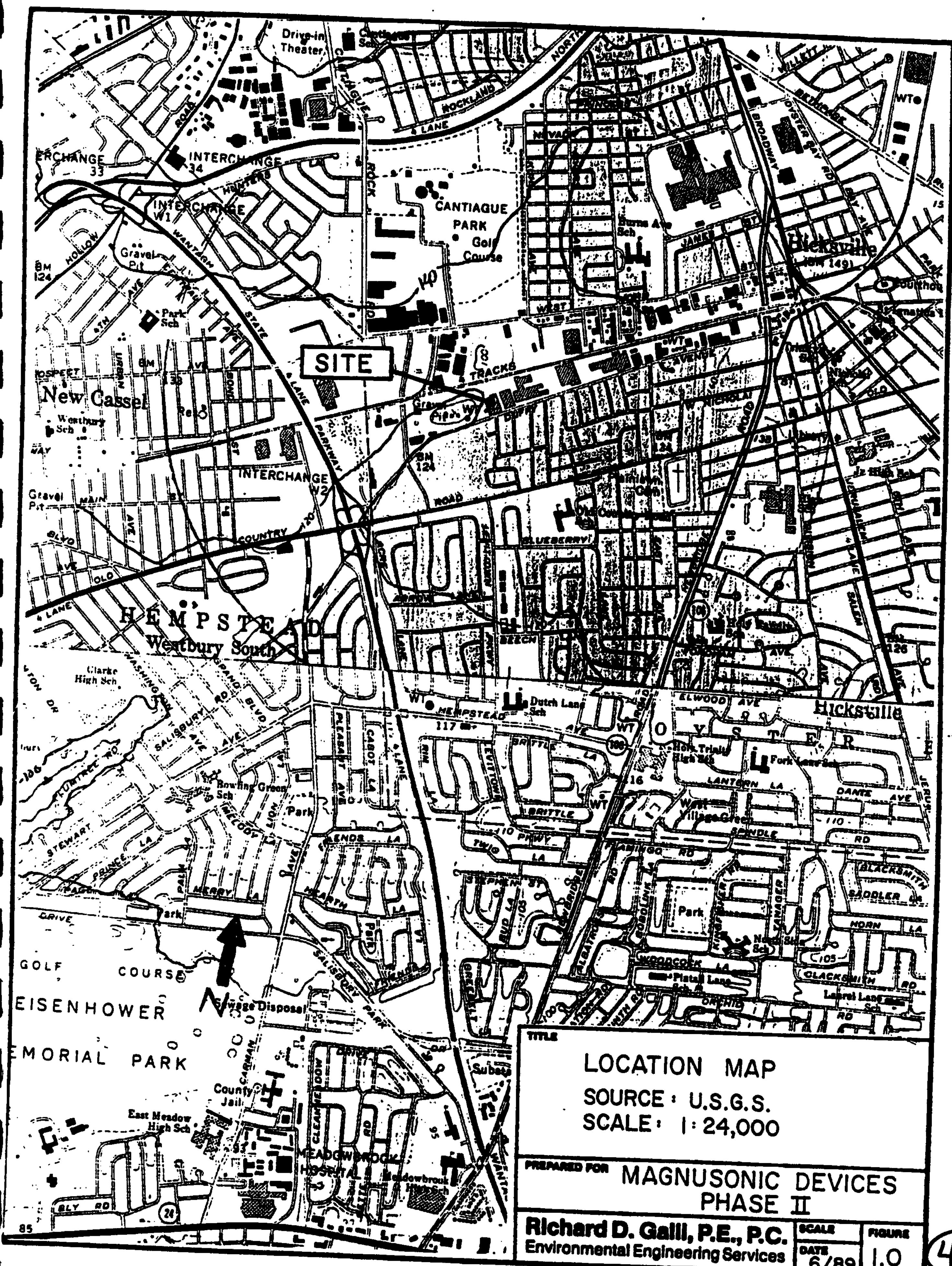

TITLE

LOCATION MAP
SOURCE : U.S.G.S.
SCALE : 1 : 24,000

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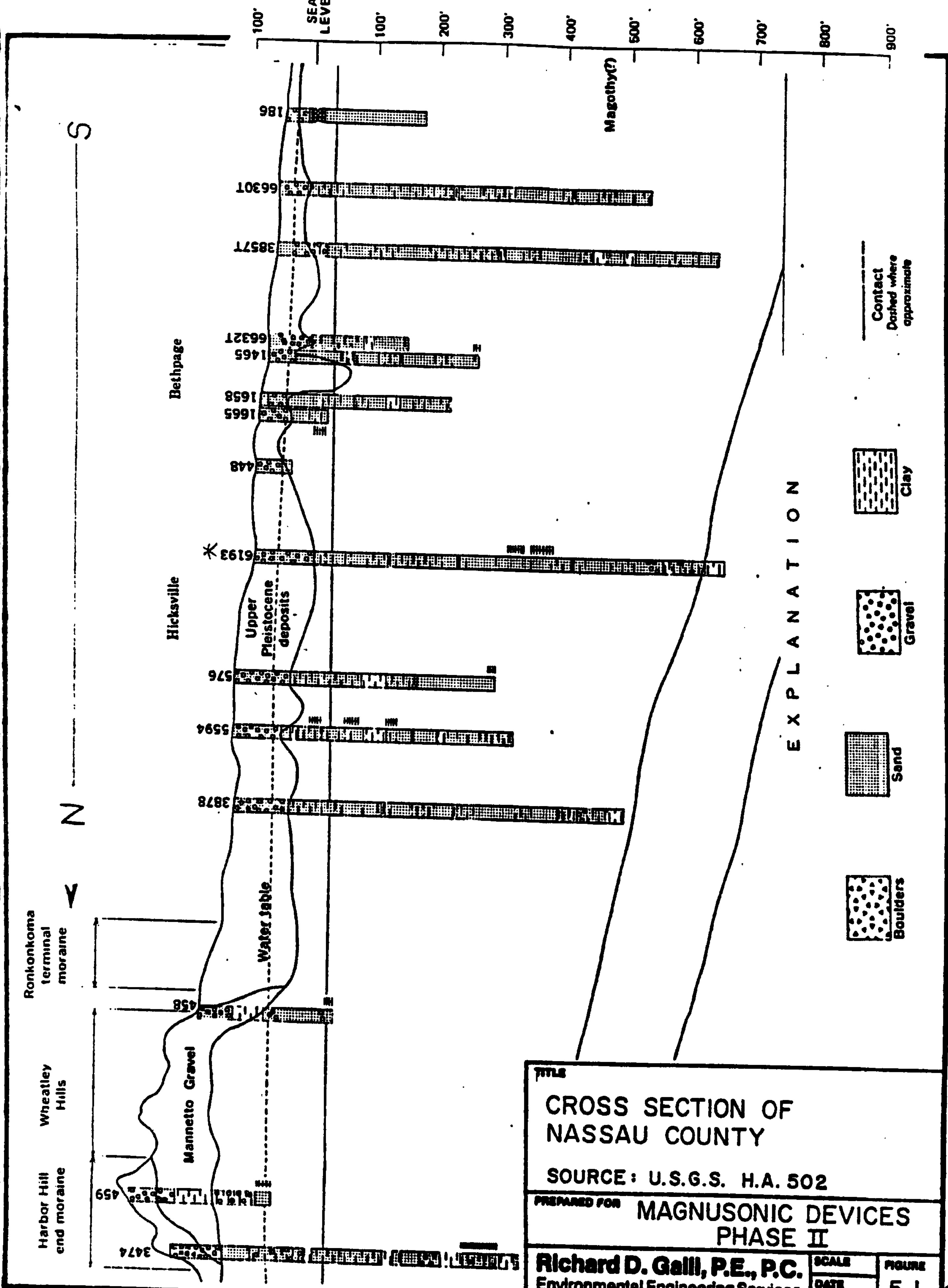
Environmental Engineering Services

SCALE

DATE 6/89

FIGURE 1.0



TITLE

CROSS SECTION OF NASSAU COUNTY

SOURCE: U.S.G.S. H.A. 502

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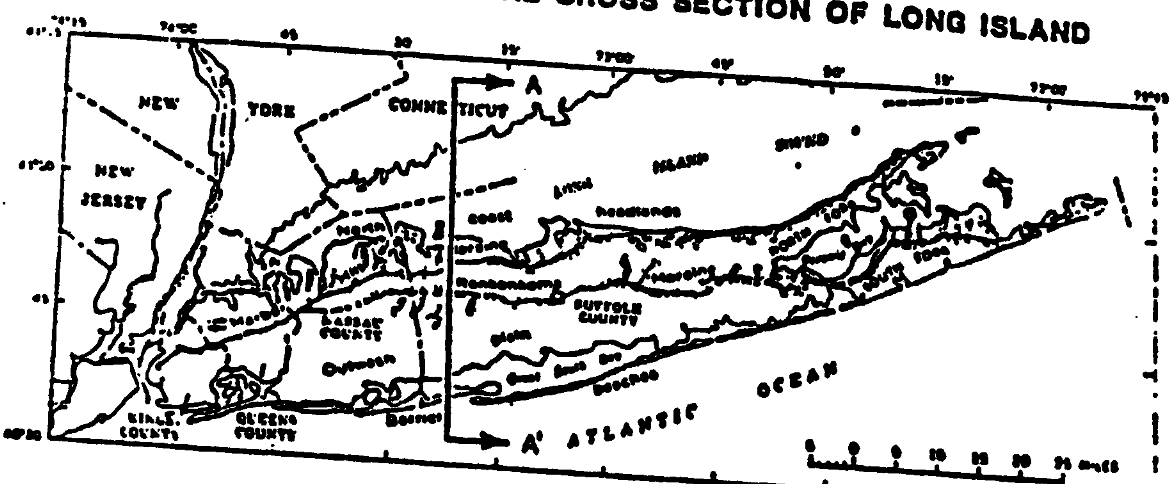
Environmental Engineering Services

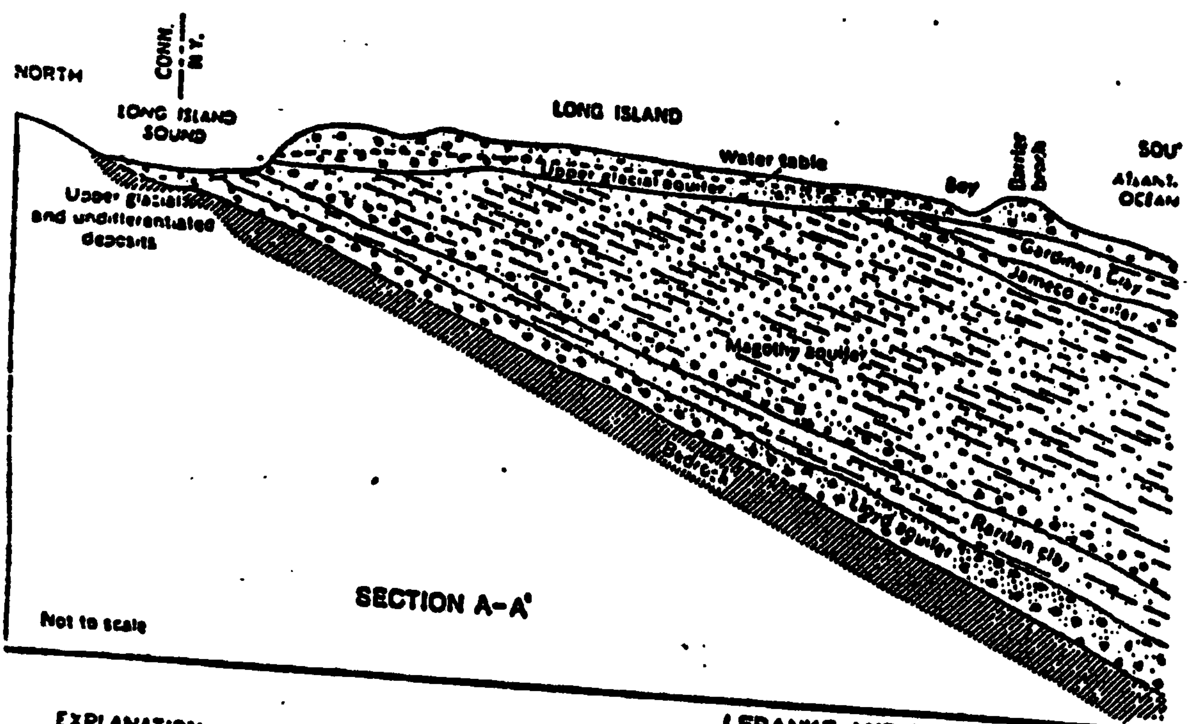
SCALE	FIGURE
DATE 6/89	5.1

50

GENERALIZED GEOLOGICAL CROSS SECTION OF LONG ISLAND

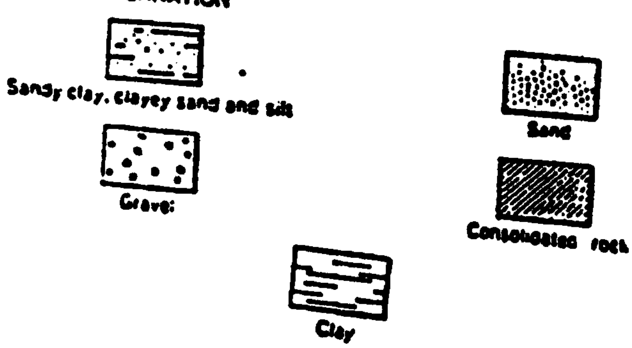


(FRANKE AND MC CLYMONDS, 1972)



(FRANKE AND MC CLYMONDS, 1972

EXPLANATION



TITLE

GENERALIZED CROSS SECTION OF LONG ISLAND

SOURCE : U.S.G.S.

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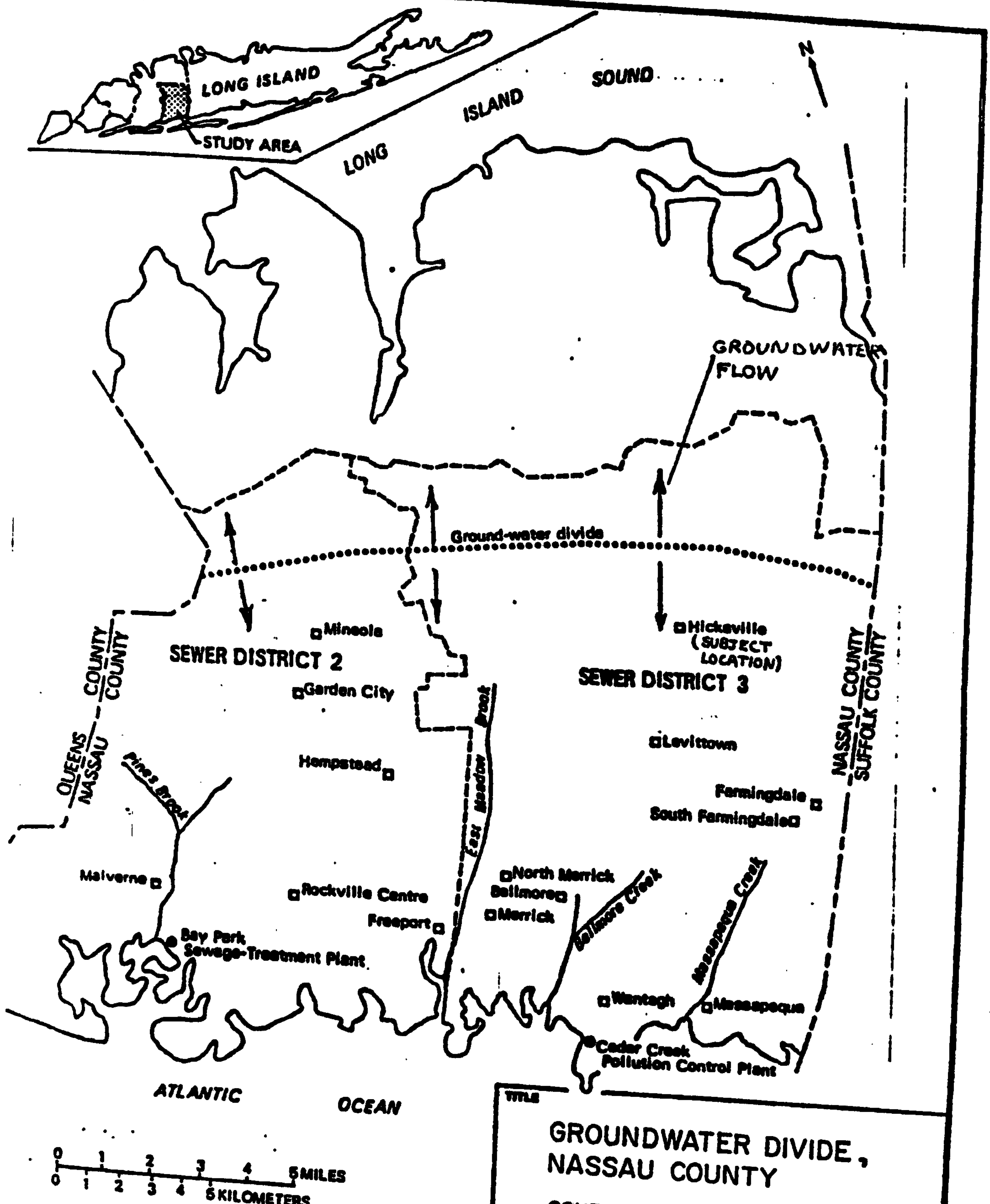
Environmental Engineering Services

SCALE	FIGURE
DATE 6/89	5.0

(51)



TITLE

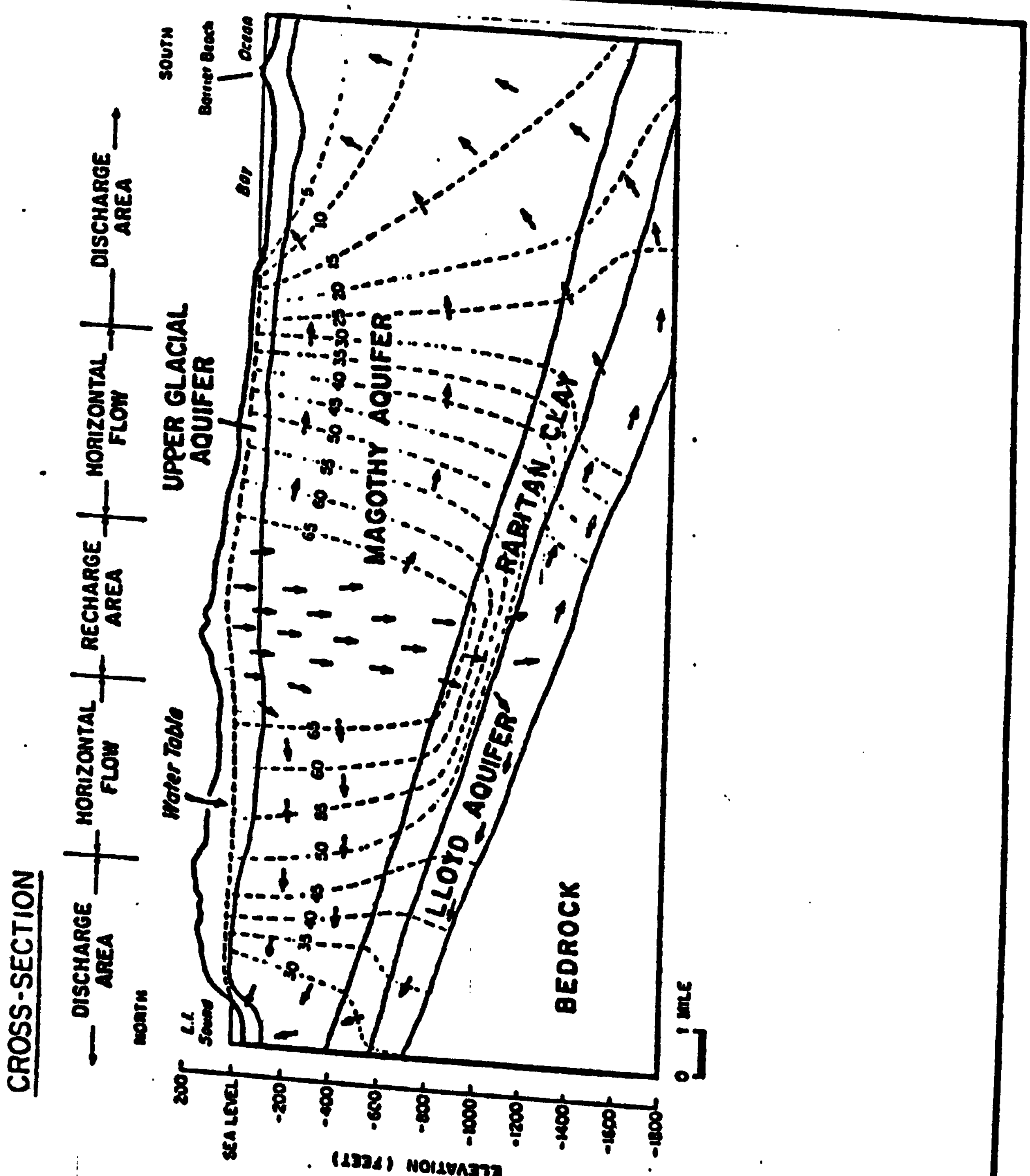
GROUNDWATER DIVIDE, NASSAU COUNTY

SOURCE: U.S.G.S.

PREPARED FOR MAGNUSONIC DEVICES PHASE II

Richard D. Galli, P.E., P.C.
Environmental Engineering Services

SCALE	FIGURE
DATE 6/89	5.2



TITLE

THREE DIMENSIONAL FLOW RELATIONSHIPS, NASSAU COUNTY

SOURCE: GERAGHTY & MILLER, INC.

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SCALE

DATE 6/89

FIGURE 5.3

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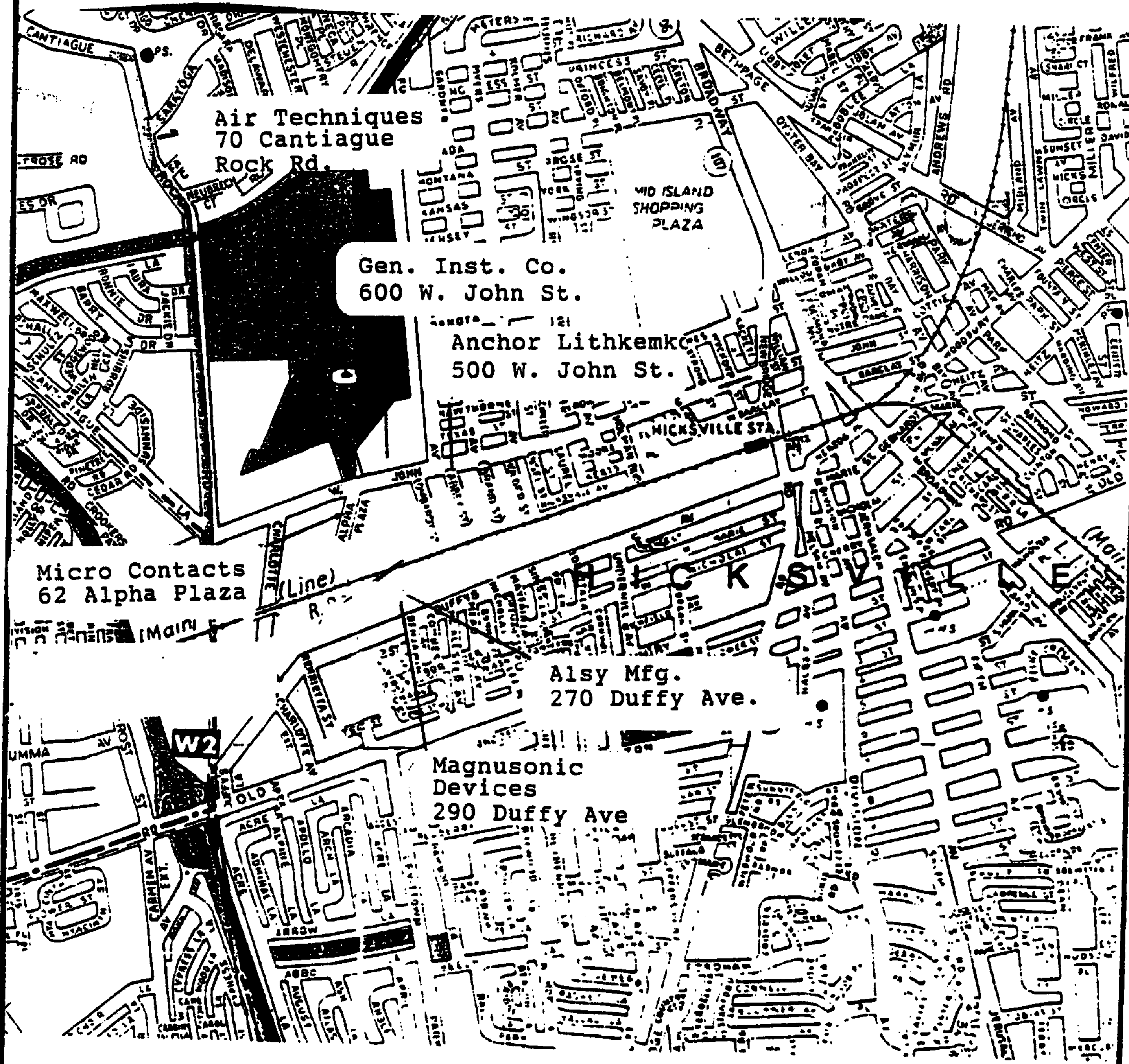


SOURCE: N.C.D.H., N.Y.S.D.E.C., U.S.E.P.A.

TITLE
LOCATIONS OF KNOWN OR POTENTIAL HAZARDOUS WASTE DISCHARGES, HICKSVILLE AREA

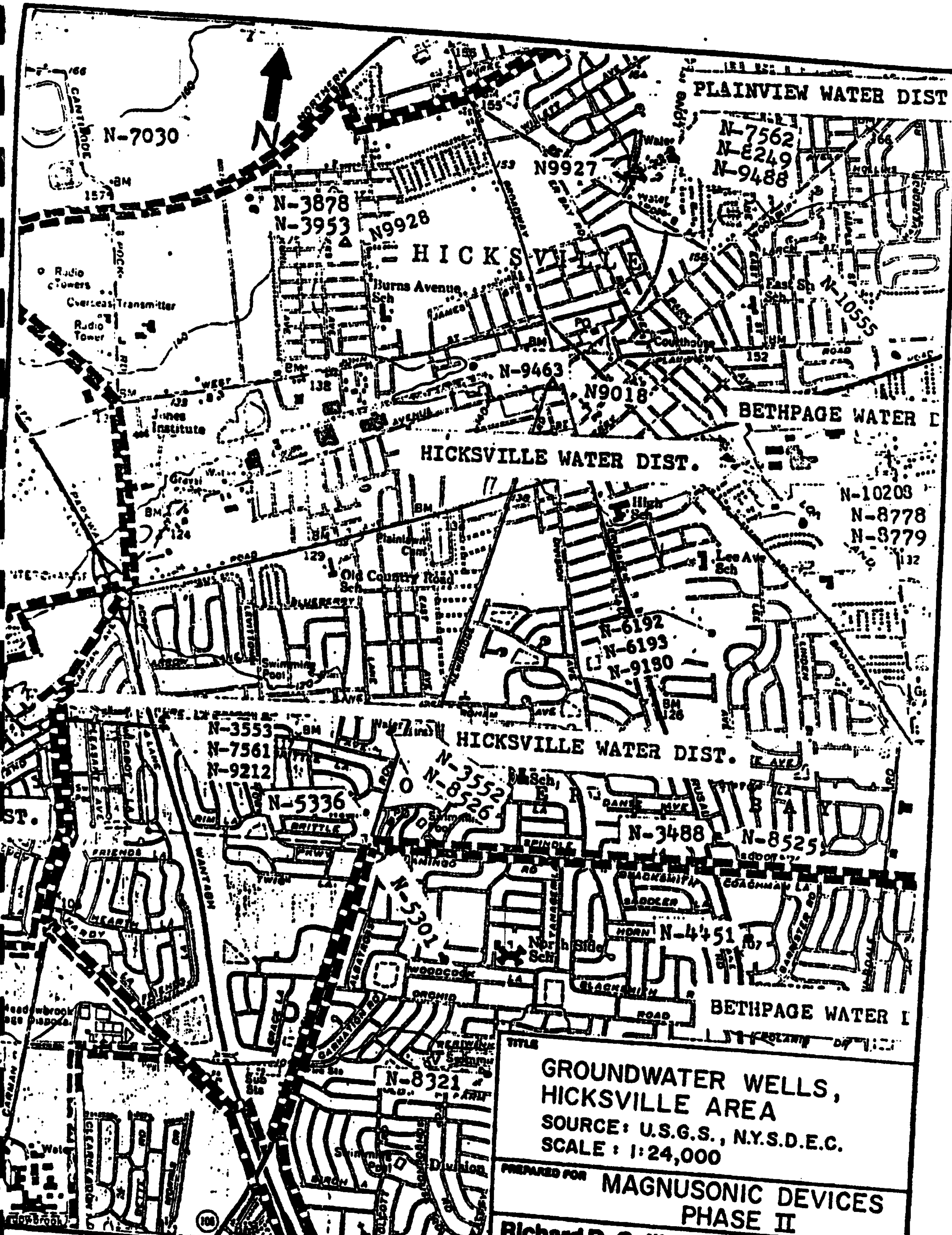
PREPARED FOR **MAGNUSONIC DEVICES PHASE II**

Richard D. Galli, P.E., P.C.
Environmental Engineering Services

SCALE

DATE 6/89

FIGURE 5.5



GROUNDWATER WELLS,
HICKSVILLE AREA
SOURCE: U.S.G.S., N.Y.S.D.E.C.
SCALE: 1:24,000

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PHASE II

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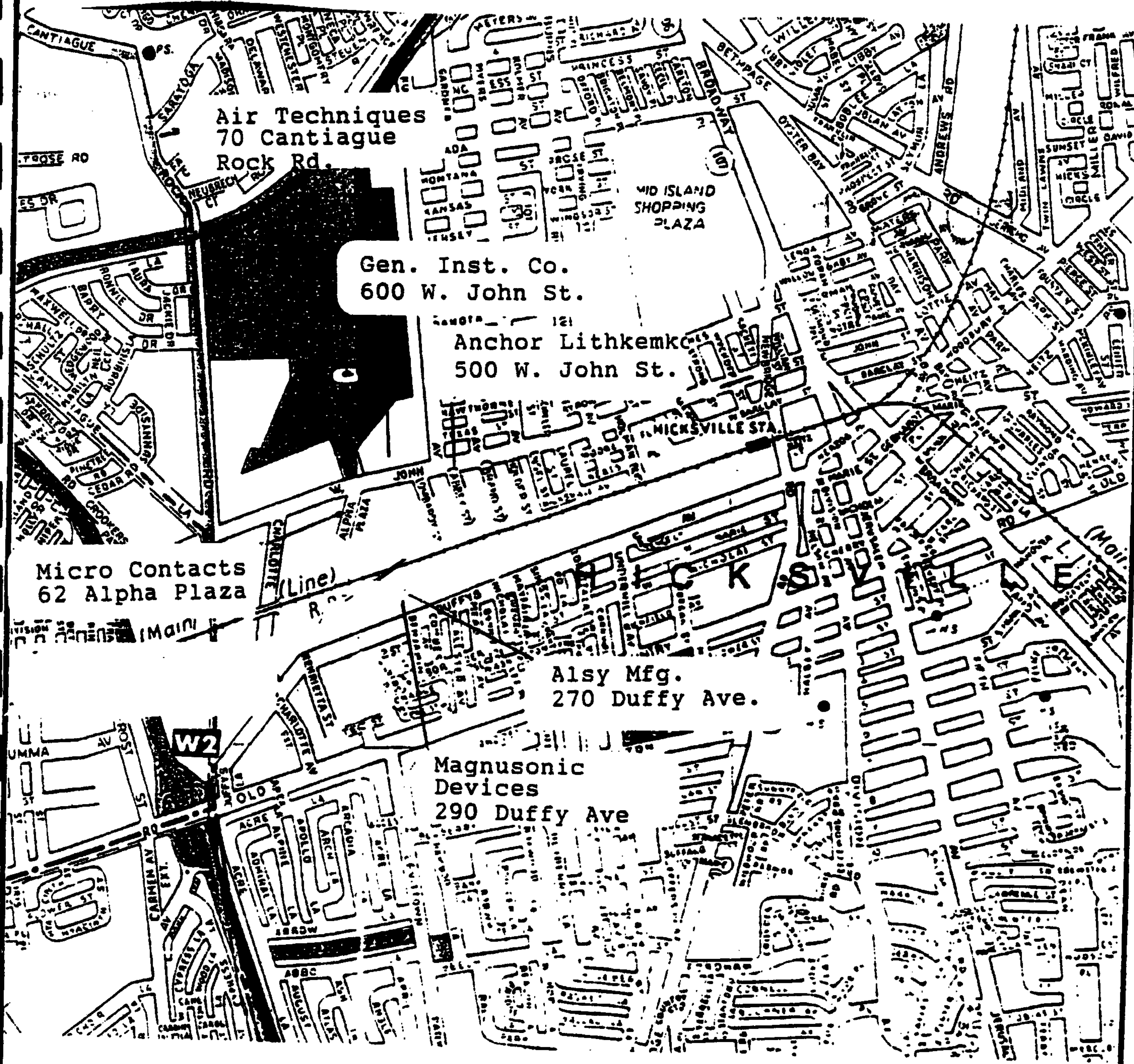
Environmental Engineering Services

SCALE	FIGURE
DATE 6/89	5.4



SOURCE: N.C.D.H., N.Y.S.D.E.C., U.S.E.P.A.

TITLE
LOCATIONS OF KNOWN OR POTENTIAL HAZARDOUS WASTE DISCHARGES, HICKSVILLE AREA

PREPARED FOR **MAGNUSONIC DEVICES PHASE II**

Richard D. Galli, P.E., P.C. Environmental Engineering Services	SCALE DATE 6/89	FIGURE 5.5

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TABLE 5.1 PRECIPITATION AND TEMPERATURE DATA

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	37.3	25.5	31.4	59	4	25	3.31	1.51	4.84	7	7.4
February---	38.7	26.1	32.4	60	5	32	3.37	2.17	4.45	6	8.6
March------	46.4	33.1	39.8	70	16	84	4.44	2.90	5.83	8	5.4
April------	58.0	41.8	49.9	82	28	300	4.01	2.51	5.36	7	.4
May--------	68.3	51.2	59.8	90	38	614	3.46	1.82	4.88	7	.0
June-------	77.5	60.5	69.0	95	48	870	2.93	1.44	4.22	6	.0
July-------	82.8	66.4	74.6	97	56	1,073	3.17	1.28	4.75	6	.0
August-----	81.5	65.5	73.5	95	53	1,039	4.06	1.73	6.03	6	.0
September--	74.2	58.7	66.5	92	43	795	3.63	1.71	5.28	6	.0
October----	63.7	48.5	56.1	83	32	499	3.38	1.57	4.93	5	.1
November---	52.3	39.8	46.1	71	24	198	3.97	1.89	5.76	7	.4
December---	41.4	29.8	35.6	62	11	61	3.92	1.99	5.60	7	4.3
Yearly:											
Average--	60.2	45.6	52.9	---	---	---	---	---	---	---	---
Extreme--	---	---	---	99	3	---	---	---	---	---	---
Total----	---	---	---	---	---	5,590	43.65	35.93	51.02	78	26.6

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40° F).

SOURCE: SOIL SURVEY OF NASSAU COUNTY, NY 1983

TABLE 5.2

DOCUMENTED STORAGE, GENERATION, AND DISCHARGE OF HAZARDOUS MATERIALS, HICKSVILLE AREA, BY FACILITY, SINCE 1977

Industrial Facility	Date of Violation	Hazardous Material Used Stored, Generated, or discharged since 1977 /volume, if available	Route of Discharge to soil and/or groundwater, if applic.
Alsy Manufacturing	February, 1984	Al, As, Cu, Cd, Pb, CN, Ni, Methylene Chloride, 1,1,1-trichloroethane, Toluene, Xylene/unknown	leaching pools
General Instrument Corp.	February, 1984	Trichloroethylene/ 3,600 gallons	underground storage tanks
Micro Contacts	NA	1,1,1-trichloroethane/ 1,920 gallons	no documented discharge of hazardous materials
Anchor Lithkemko	NA	Methylene chloride, 1,1,1-trichloroethane/ unknown	unknown
Air Techniques	NA	Cr, Pb, As, Ba, Ag, CN, tetrachloroethylene, aroclor 1254/unknown	unknown

Sources: NCDH Industrial Survey Program, NYSDEC Inactive Hazardous Waste Disposal Sites in New York State, Volume I

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TABLE 6.1

Soil Samples Selected For Laboratory Analysis

Sample Identification Boring	Date	Depth	Location
1) B-1	2/2/89	3-5	Industrial Leaching Pools
2) B-1	2/2/89	5-7	Industrial Leaching Pools
3) B-1	2/2/89	13-15	Industrial Leaching Pools
4) B-2	2/1/89	11-13	Industrial Leaching Pools
5) B-2	2/1/89	13-15	Industrial Leaching Pools
6) B-2	2/1/89	15-17	Industrial Leaching Pools
7) B-3	2/1/89	3-5	Industrial Leaching Pools
8) B-3	2/1/89	9-11	Industrial Leaching Pools
9) B-3	2/1/89	23-25	Industrial Leaching Pools
10)B-4	1/30/89	5-7	Industrial Leaching Pools
11)B-4	1/30/89	13-15	Industrial Leaching Pools
12)B-4	1/30/89	23-25	Industrial Leaching Pools
13)B-5	2/2/89	1-3	Industrial Leaching Pools
14)B-5	2/2/89	11-13	Industrial Leaching Pools
15)B-5	2/2/89	23-25	Industrial Leaching Pools
16)B-6	2/1/89	1-3	Industrial Leaching Pools
17)B-6	2/1/89	3-5	Industrial Leaching Pools
18)B-6	2/1/89	23-25	Industrial Leaching Pools
19)B-7	1/31/89	5-7	Back Parking Lot Area
20)B-8	1/31/89	3-5	Back Parking Lot Area
21)B-10	1/12/89	2-4	Storm Drain/Plating Wastes
22)MW-1	1/18/89	35-37	Upgradient Well
23)MW-1	1/18/89	60-62	Upgradient Well
24)MW-2	1/19/89	55-57	Upgradient Well
25)MW-2	1/20/89	60-62	Upgradient Well
26)MW-3	1/16 89	58-60	Downgradient Well
27)MW-3	1/16/89	62-64	Downgradient Well
28)MW-4	1/27/89	1-3	Downgradient Well
29)MW-4	1/27/89	60-62	Downgradient Well
30)MW-5	1/24/89	1-3	Downgradient Well
31)MW-5	1/24/89	60-62	Downgradient Well
32)MW-6	1/25/89	5-7	Downgradient Well
33)MW-6	1/26/89	60-62	Downgradient Well
34)Field Blank	1/20/89	-	Split Spoon Sampler
35)Trip Blank	2/2/89		

TABLE 6.2 - METALS ANALYSIS, SOILS - All values in mg/kg except where noted

METALS	B-1 3-5'	B-1 5-7'	B-1 13-15'	B-2 11-13'	B-2 13-15'	B-2 15-17'	B-3 3-5'	B-3 9-11'	B-3 23-25'	B-4 5-7'	B-4 13-15'	B-4 23-25'	B-5 1-3'	B-5 11-13'	B-5 23-25'	B-6 1-3'	B-6 3-5'	B-6 23-25'
Aluminum	968.0	1830.0	1130.0	1690.0	1080.0	1490.0	2290.0	1150.0	1316.0	844.0	741.0	281.0	1090.0	1360.0	919.0	15290.0	9195.0	3540.0
Antimony	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Arsenic	0.9	U	49.8	1.6	0.7 B	0.8 B	1.3	1.2	0.5 B	U	U	U	U	U	U	4.4	0.9 B	3.6
Barium	8.0 B	14.3	6.4 B	9.0	U	6.3	8.4	U	7.5	5.5	6.4	8.0	6.1 B	5.7	6.6	54.6	26.5	18.0
Berillium	U	U	U	U	U	U	0.5	U	U	U	U	U	U	U	U	0.9	0.6	U
Cadmium	U	U	U	U	U	U	0.5	U	U	U	U	U	U	U	U	U	U	U
Calcium	468.0 B	626.0	442.0 U	552.0	530.0	466.0 B	581.0	381.0 B	397.0 B	460.0 B	410.0 B	442.0 B	380.0 B	276.0	378.0 B	806.0	1170.0	379.0
Chromium	3.0	9.9	4.8	13.6	22.8	11.5	5.1	4.4	3.3	3.1	9.2	2.2	5.4	5.8	3.4	20.2	12.3	7.5
Hexavalent Chromium	0.3	U	1.7	0.3	0.2	0.3	U	0.1	4.3	U	0.2	0.1	U	0.1	0.3	2.2	U	2.5
Cölbalt	U	1.6	U	1.7	1.1	1.1	1.6	U	U	U	U	U	U	1.2	U	8.2	4.1	1.4
Copper	8.8	10.5	15.7	20.7	24.6	22.5	8.5	7.6	6.8	2.8	5.4	2.6	14.8	5.4	3.9	11.8	12.3	8.6
Iron	2144.0	4780.0	6890.0	11880.0	5110.0	4890.0	3640.0	3960.0	2160.0	1050.0	1260.0	607.0	4440.0	2605.0	1464.0	15090.0	8820.0	4350.0
Lead	2.7	4.1	5.3	8.2	2.3	2.0	2.9	2.5	3.1	1.0	1.8	1.3	U	3.9	U	4.3	2.1	11.7
Magnesium	305.0 B	528.0 B	355.0 B	481.0 B	255.0 B	350.0 B	463.0	263.0 B	191.0 B	226.0 B	259.0 B	134.0 B	301.0 B	326.0 B	175.0 B	2520.0	1530.0	803.0
Manganese	52.3	85.8	46.0	59.7	40.0	37.9	68.1	39.7	33.6	34.3	34.7	19.1	30.6	47.8	14.3	200.0	105.0	71.4
Mercury	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Nickel	3.2	5.6	6.0	15.9	23.4	14.8	3.6	U	U	U	U	U	15.8	3.6	2.2	11.9	11.9	3.7
Potassium	105.0 B	441.0 B	51.9 B	261.0	215.0	147.0 B	2318.0 B	1881.0 B	73.1	88.2 B	91.2 B	54.6 B	16.3 B	145.0 B	86.1	808.0	406.0 B	496.0 B
Selenium	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Silver	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sodium	87.8 B	165.0 B	125.0 B	89.0 B	59.8 B	55.8 B	54.9 B	40.4 B	39.5	323.0 B	29.2 B	31.2 B	70.2 B	78.7 B	47.8	11.6	111.0 B	60.2
Thalium	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	1.7	3.7	2.0	5.2	3.4	5.6	4.7	3.2	2.2	1.1	1.3	U	1.9	2.6	1.5	29.3	16.1	8.1
Zinc	6.4	11.9	8.7	20.0	12.3	10.1	10.3	6.3	6.0	6.3	12.3	4.9	16.8	8.1	4.8	29.4	23.3	14.0
Cyanide	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

TABLE 6.2 - METALS, ANALYSIS, SOILS (continued) - All values in mg/kg except where noted

METALS	B-7 5-7'	B-8 3-5'	B-10 2-4'	MW-1 35-37	MW-1 60-62'	MW-2 55-57'	MW-2 60-62'	MW-3 58-60'	MW-3 62-64'	MW-4 1-3'	MW-4 60-62'	MW-5 1-3'	MW-5 60-62'	MW-6 5-7'	MW-6 60-62'	FIELD * BLANK	TRIP * BLANK	TAP * WATER
Aluminum	8510.0	4830.0	3130.0	1440.0	1040.0	852.0	556.0	1660.0	1530.0	4990.0	5300.0	5000.0	782.0	1990.0	1270.0	U	NA	U
Antimony	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U
Arsenic	18.6	11.0	4.2	1.0	0.9	0.6	1.3	1.1	1.0	3.9	5.1	2.1	U	U	0.7	U	NA	U
Barium	279.0	194.0	57.4	8.2 B	6.2 B	5.6	U	6.9 B	8.2 B	19.8	18.9	19.8	7.0 B	13.3	12.0	U	NA	U
Beryllium	1.8	U	U	U	U	U	U	0.5	U	U	U	U	U	U	U	U	NA	U
Cadmium	1.8	0.8	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U
Calcium	5970.0	5813.0	3780.0	399.0 B	466.0 B	412.0 B	282.0 B	932.0	3710.0	1080.0	1030.0	4840.0	252.0 B	248.0	270.0 B	1415.0 B	NA	1250.0
Chromium	17.6	19.9	1650.0	3.0	14.6	2.9	4.6	28.8	5.3	6.9	7.0	7.3	2.5	5.7	5.2	6.0 B	NA	U
Hexavalent Chromium	4.3	15.0	45.2	0.2	0.1	U	0.2	U	0.2	0.2	1.0	1.0	0.1	0.4	1.7	U	NA	U
Cobalt	5.7	5.4	145.0	1.0	U	U	U	U	U	3.1	2.7	2.9	U	U	U	U	NA	U
Copper	26750.0	220.0	54900.0	2.6	6.4	2.9	2.5	31.8	23.2	8.4	7.1	6.0	1.1	2.0	2.4	U	NA	1100.0
Iron	29510.0	32060.0	6490.0	2570.0	3180.0	1690.0	1860.0	14600.0	3930.0	6110.0	5650.0	5160.0	1030.0	3397.0	1790.0	1250.0	NA	24.0
Lead	298.0	1322.0	1170.0	3.9	3.1	1.4	2.0	1.3	1.5	21.5	20.2	37.1	18.3	1.9	3.1 U	U	NA	U
Magnesium	1140.0	916.0	2020.0	219.0 B	167.0 B	171.0 B	101.0	145.0 B	254.0 B	776.0	764.0	713.0	117.0 B	467.0 B	85.3 B	327.0 B	NA	5710.0
Manganese	259.0	214.0	45.8	48.4	37.6	34.0	13.1	39.5	55.6	94.8	102.0	118.0	17.3	727.0	12.2	13.0	NA	U
Mercury	U	U	0.2	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U
Nickel	14.8	20.5	4240.0	U	2.9	U	U	2.7	U	6.6	5.5	4.4	U	U	U	U	NA	U
Potassium	657.0	415.0 B	324.0 B	105.0 B	111.0 B	108.0 B	108.0 B	144.0 B	160.0 B	403.0 B	432.0 B	432.0 B	202.0 B	722.0	178.0 B	705.0 B	NA	1139.0 B
Selenium	U	U	3.1	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U
Silver	1.3	U	4.9	U	U	U	U	U	U	U	U	1.8	U	U	U	U	NA	U
Sodium	186.0	151.0 B	289.0 B	28.5 B	43.5 B	32.9 B	31.9	27.3 B	34.7 B	33.2 B	35.0 B	77.2 B	32.6 B	48.3	17.3 B	189.0 B	NA	9176.0
Thallium	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	5.0	NA	U
Vanadium	23.7	14.5	U	2.8	2.4 B	1.6 B	2.2 B	15.3	4.0 B	10.7	11.0	9.5	1.7	4.0	3.4	U	NA	U
Zinc	587.0	602.0	11500.0	8.8	11.3	8.5	5.5	20.6	13.0	34.4	19.8	26.8	6.9	9.2	5.9	27.0	NA	56.0
Cyanide	U	0.9	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

*Values are given in ug/l

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TABLE 6.3 - VOLATILE ORGANIC ANALYSIS, SOILS - All values in ug/kg except where noted

VOLATILE ORGANICS	B-1 3-5'	B-1 5-7'	B-1 13-15'	B-2 11-13'	B-2 13-15'	B-2 15-17'	B-3 3-5'	B-3 9-11'	B-3 23-25'	B-4 5-7'	B-4 13-15'	B-4 23-25'	B-5 1-3'	B-5 11-13'	B-5 23-25'	B-6 1-3'	B-6 3-5'	B-6 23-25'
Methylene Chloride	12B	8	58J	12	14	12B	3	5J	8	U	1J	11	6B	10B	14B	10	10B	7B
Acetone	U	U	17	U	22	42	U	22	25	15	U	U	19	16	20	46	27	18

Only volatile organics identified within the listed samples are given in table. All other volatile organic parameters were not detected in samples.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

TABLE 6.3- VOLATILE ORGANIC ANALYSIS, SOILS (Continued) - All values in ug/kg except where noted

VOLATILE ORGANICS	B-7 5-7'	B-8 3-5'	B-10 2-4'	MW-1 35-37	MW-1 60-62'	MW-2 55-57'	MW-2 60-62'	MW-3 58-60'	MW-3 62-64'	MW-4 1-3'	MW-4 60-62'	MW-5 1-3'	MW-5 60-62'	MW-6 5-7'	MW-6 60-62'	FIELD* BLANK	TRIP* BLANK	TAP* WATER
Methylene Chloride	8	6	12	2J	3J	U	8B	U	9/U	U	U	7B	6B/6B	7B	U	4BJ	18	5B
Acetone	U	U	220	U	25	U	U	6	85/78	U	U	U	U/25	U	U	U	27	U
1,1, Dichloroethane	U	U	160/240	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethane	U	U	34	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Tolune	U	U	95	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Xylenes (Total)	U	U	47	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

Only specific volatile organic compounds identified in the listed samples are given in the table. All other volatile organic compounds were not detected in the samples.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

* Values in ug/l

TABLE 6.4 - SEMI-VOLATILE ORGANIC ANALYSIS, SOILS - All values in ug/kg except where noted

SEMI-VOLATILE ORGANINCS	B-1 3-5'	B-1 5-7'	B-1 13-15'	B-2 11-13'	B-2 13-15'	B-2 15-17'	B-3 3-5'	B-3 9-11'	B-3 23-25'	B-4 5-7'	B-4 13-15'	B-4 23-25'	B-5 1-3'	B-5 11-13'	B-5 23-25'	B-6 1-3'	B-6 3-5'	B-6 23-25'
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	U	41J	U	U	U	U	U	U
bis (2 Ethylhexy) Phthalate	390	1100D	170J	220J	620	150J	1200J	670	730	4600	200J	490	1800J	120J	86000	140J	23000	140J
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	4800	U	U	U	U	U	U	U	U

Note: Only specific semi-volatile organic compounds identified in the listed samples are given in the table. All other semi-volatile organic compounds were not detected in the samples.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

TABLE 6.4 - SEMI-VOLATILE ORGANIC ANALYSIS, SOILS (Continued) - All values in ug/kg except where noted.

SEMI-VOLITILE ORGANICS	B-7 5-7'	B-8 3-5'	B-10 2-4'	MW-1 35-37	MW-1 60-62'	MW-2 55-57'	MW-2 60-62'	MW-3 58-60'	MW-3 62-64'	MW-4 1-3'	MW-4 60-62'	MW-5 1-3'	MW-5 60-62'	MW-6 5-7'	MW-6 60-62'	FIELD BLANK	TRIP BLANK	TAP WATER
2 Methylnaphthalene	320J	200J	11000J	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Naphthalene	310J	330J	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Diethylphthalate	U	U	U	53J	U	U	310J	U	U	U	17J	U	U	40J/52J	U	NA	U	U
Pentachlorophenol	780J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Fluoranthene	1100J	340J	U	U	U	U	U	U	U	U	U	U	U	U/90J	U	NA	U	U
Pyrene	750J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Chrysene	820J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Phenanthrene	U	310J	U	U	U	U	U	U	U	U	U	U	U	53J/57J	U	NA	U	U
bis(2 Ethylexyl) Phthalate	3800J	3200J	46,0000	190J	270J	3500	U	980	720	280J	240J	330J	3900	320J/350	U	NA	U	110
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Benzo (b) fluoranthene	1100J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Benzo (a) pyrene	730J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
1,2,4 Trichlorobenzene	U	U	200,0000	U	U	U	U	U	35J	U	U	U	U	U	U	NA	U	U
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	U
Di-N-Butylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	NA	U	0.8J

Note: Only specific semi-volatile organic compounds identified in the listed samples are given in the table. All other semi-volatile organic compounds were not detected in the samples.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

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B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

TABLE 6.5
Comparison of Natural Soils Concentrations and Site Soil Concentrations

Parameter Element	**Column A** (a) Concentration Range of Typical Eastern Soils (ppm)	**Column B** Concentration Range of Soil Samples from Monitoring Wells (ppm)	**Column C** Concentration Range of Soil Samples Collected from Location #1 (ppm)
Aluminum	10,000-300,000	556-5,300	281-15,290
Arsenic	U-40	U-3.9	U-49.8*
Cadmium	U-7	Not Detected	U-0.5
Chromium	50-170	3.0-28.8	3.1-22.8
Cobalt	1-40	U-3.1	U-8.2
Copper	2-100	1.1-31.8	2.6-24.6
Iron	20,000-50,000	1,033-14,600	607-15,090
Lead	2-200	1.4-37.1	U-11.7
Manganese	100-4,000	12.2-727	19.1-200
Mercury	U-4.6	Not Detected	Not Detected
Nickel	10-40	U-6.6	U-23.4
Selenium	U-2.0	Not Detected	Not Detected
Vanadium	20-500	1.6-11.0	U-29.3
Zinc	10-300	5.5-34.4	4.9-29.4

(a) Adapted from Hazardous Waste Land Treatment SW-874 (April, 1983) and Kingsbury and Ray (1986)

* Unexplained or suspect value

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TABLE 6.6

Estimated Average Hydraulic Conductivities
for Long Island Aquifers

Aquifer	Approximate Maximum Thickness (feet)	Estimated Average Hydraulic conductivity (feet/day)	
		Horizontal	Vertical
Upper Glacial Aquifer	400	270	27
Magothy Aquifer	1,000	50	1.4
Lloyd Aquifer	300	40	7

Franke & Cohen, USGS Prof. Paper 800-C

TABLE 6.7 - Depth to Water at Site Wells

Well I.D.	Total Depth of Well (ft)	Depth to Water (ft)., Date: 3/14/89	3/27/89	4/11/89	5/9/89
MW-1	67.63	59.42	59.67	59.42	58.86
MW-2	67.80	59.37	59.50	59.32	58.86
MW-3	69.94	61.19	61.16	60.98	60.60
MW-4	69.04	60.87	60.84	60.76	60.35
MW-5	67.96	60.85	60.92	69.73	60.32
MW-6	68.60	60.57	60.61	60.46	60.06
OW-1	69.50	60.17	59.49	59.24	58.75
OW-2	68.00	60.03	59.31	59.17	58.77
OW-3	70.05	61.20	60.73	60.58	60.16
OW-4	68.00	61.23	60.95	60.70	60.36

TABLE 6.8 - Water Table Elevation Data

Well I.D.	*Elevation of Top of Well Casing	*Elevation of Water Table (ft) Well/Date:			
		[a]3/14/89	+3/27/89	4/11/89	+5/9/89
MW-1	131.38	71.96	71.71	71.96	72.52
MW-2	131.29	71.92	71.79	71.97	72.43
MW-3	132.43	71.24	71.27	71.45	71.83
MW-4	132.08	71.21	71.24	71.32	71.73
MW-5	131.98	71.13	71.06	71.25	71.66
MW-6	131.72	71.15	71.11	71.26	71.66
OW-1	131.17	71.53	71.68	71.93	72.42
OW-2	131.07	71.49	71.76	71.90	72.30
OW-3	131.83	70.91	71.10	71.25	71.67
OW-4	131.97	70.91	71.02	71.27	71.61

* To Nassau County Datum
+ Groundwater Contour Map
a The observation well measurements collected on 3/14/89 were measured from the top surface of the well manhole, the elevation of each manhole cover (top) is as follows: OW-1=131.70 : OW-2=131.52 ; OW-3=132.11 ; OW-4=132.14

TABLE 6.9 - METALS ANALYSIS, GROUNDWATER - All values in ug/l except where noted

METALS	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7*	FIELD BLANK
ALUMINUM	573.00	3.90	541.00	3249.00	584.00	U	412.00	U
ANTIMONY	U	U	U	U	U	U	U	U
ARSENIC	U	U	U	U	U	U	U	U
BARIUM	U	54.00 B	U	U	U	57.00 B	U	U
BERYLLIUM	U	U	U	U	U	U	U	U
CADMIUM	U	U	U	U	U	U	U	U
CALCIUM	12070.00	27240.00	8270.00	9474.00	10500.00	14670.00	9200.00	2905.00
CHROMIUM	U	U	12.00	U	20.00	U	U	U
HEXAVALENT CHROMIUM+	U	U	U	U	0.02	U	U	-
COBALT	U	U	U	U	U	U	U	U
COPPER	13.00	12.00	23.00	U	13.00	11.00	21.00	U
IRON	2181.00	1407.00	2490.00	4977.00	1550.00	853.00	2160.00	857.00
LEAD	U	U	U	U	U	U	U	U
MAGNESIUM	1751.00 B	5547.00	1300.00 B	1562.00 B	1797.00 B	2821.00 B	1450.00 B	634.00 B
MANGANESE	30.00	328.00	35.00	108.00	40.00	48.00	34.00	U
MERCURY	U	U	0.90	U	U	U	U	U
NICKEL	U	U	U	U	U	U	U	U
POTASSIUM	U	2707.00 B	U	U	1027.00 B	1727.00 B	U	U
SELENIUM	U	U	U	U	U	U	U	U
SILVER	U	U	U	U	U	U	U	U
SODIUM	1535.00 B	11820.00	1489.00 B	1404.00 B	3030.00 B	3060.00 B	1630.00 B	471.00 B
THALLIUM	U	U	U	U	U	U	U	U
VANADIUM	U	U	U	U	U	U	U	U
ZINC	29.00	61.00	46.00	30.00	29.00	89.00	33.00	31.00
CYANIDE	U	U	U	U	U	U	U	U

Note: *MW-7 is designation given to duplicate sample collected from MW-3

+Hexavalent Chromium is given in mg/l

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis

TABLE 6.10- VOLATILE ORGANIC ANALYSIS, GROUNDWATER - All values are in ug/l except where noted

VOLATILE ORGANIC UG/l	MW-1	MW-2	M2-2 RE	MW-3	MW-3 RE	MW-4	MW-4 MS	MW-4 MSD	MW-5	MW-6	MW-6 RE	MW-7*	FIELD BLANK	TRIP BLANK
ACETONE	23	118	628	278	198	37	39	36	U	U	12	11	158	8J
1,1-DICHLOROETHENE	U	5	U	U	U	U	U	U	U	U	U	U	U	U
1,1,1-TRICHLOROETHANE	8	9	3J	22	20	72	63	59	43	24	23	22	8	U
METHYLENE CHLORIDE	U	U	U	U	U	U	2J	1J	U	U	U	U	U	U

Note: *MW-7 is designation given to duplicate sample collected from MW-3

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

TABLE 6.11 - INDICATOR PARAMETERS - All values in mg/l except as here noted

INDICATOR PARAMETERS mg/l	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7*	FIELD BLANK	TRIP BLANK
BOD	<3	<3	<3	<3	<3	<3	<3	-	-
CHLORIDE	165	55	20	<1	<1	<1	<1	-	-
COD	26	15	18	18	<5	26	<5	-	-
FLUORIDE	.03	.03	.04	.03	.03	.03	.03	-	-
NITRATE	4.26	1.19	1.35	1.16	1.74	3.91	1/13	<.04	-
PHENOL	.339	.233	.107	.718	.109	.250	.088	.067	-
SULFATE	<1	2	10	<1	4	1	<1	-	-
TSS	1200	618	102	612	149	1154	38	-	-
pH (Field)	5.49	5.46	5.32	5.46	5.37	5.6	5.32	-	-
Temperature (Field)	60**	60**	60**	60**	60**	60**	60**	-	-

Notes: * MW-7 is designation given to duplicate sample collected from MW-3

**Temperature is given in Fahrenheit

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

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B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

Note: Data on soil samples expressed on a dry weight basis.

TABLE 6.12

SEMI-VOLATILE ANALYSIS, GROUNDWATER

All analyis in ug/l

SEMI-VOLATILE ORGANIC PARAMETER	MW-1	MW-1/RE	MW-2	MW-3	MW-3/RE	MW-4	MW-5	MW-6	*MW-7	FIELD BLANK	TRIP BLANK
bis (2-Ethylhexyl) Phthalate	U	U	NA	U	U	U	NA	NA	73	U	NA

NA - NOT ANALYZED

NOTE: * MW-7 is designation given to duplicate sample collected from MW-3.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the same with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J).

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

REFERENCE NO. 26

PRELIMINARY SAMPLING REPORT

MAGNUSONIC DEVICES, INC.
290 Duffy Avenue
Hicksville, New York

NYSDEC Site Code: 1-30-031

DRAFT EDITION

Prepared for:

SmithKline Beecham Corp.
709 Swedeland Road
P.O. Box 1539
King of Prussia, PA 19406-0939

December 1992

LIFE SUPPORT SCIENCES INC.

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PRELIMINARY SAMPLING REPORT
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MAGNUSONIC DEVICES SITE
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prepared by:

Life Support Sciences, Inc.
284 Pulaski Road
Greenlawn, NY 11740

December 1992

LIFE
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FIGURES

APPENDICES

1.0 INTRODUCTION

On June 9, 1992 Richard D. Galli P.E., P.C. (RDG) conducted a preliminary sampling investigation at the Magnusonic Devices, Inc. site, located at 290 Duffy Avenue, in Hicksville, New York. The Magnusonic Devices, Inc. site, hereafter referred to as "the site", is currently classified by the New York State Department of Environmental Conservation (NYSDEC) as an Inactive Hazardous Waste Disposal (IHWD) site. The NYSDEC has claimed that metals and solvents were discharged into on-site cesspools by Magnusonic Devices, Inc. during the period between 1981 and 1985. Chemicals allegedly discharged on-site include: nickel, acetone, Freon TF, 1,1,1-trichloroethane, trichloroethylene, and methylene chloride.

During the negotiations between SmithKline Beecham Corp., the site owner, and NYSDEC regarding the RI/FS consent order for the site, the NYSDEC requested that SmithKline Beecham conduct an Interim Remedial Measure (IRM) at the site, either as part of the RI/FS consent order or under a separate IRM consent order. The preliminary sampling investigation was performed in connection with the IRM Work Plan proposed in conjunction with the RI/FS. The purpose of the sampling was to determine the extent of contamination and the scope of remediation (e.g., excavation, analyses, and disposal) that would be required as part of the IRM. The preliminary sampling investigation was based on the findings of the January 1990 Phase II Investigation report, prepared by Richard D. Galli, P.E., P.C.

During the Phase II Investigation a total of ten (10) exploratory soil borings were completed, and six (6) groundwater monitoring wells were installed; see attached Sampling Schematic, Figure 2.0. Six (6) of the ten (10) soil borings were advanced in the area of the industrial discharge pools, located at the rear of, and adjacent to the subject building. Three (3) soil borings were advanced at the northernmost portion of the property, adjacent to the Long Island Railroad (LIRR) right-of-way. One (1) soil boring was advanced in the drywell located on the eastern portion of the property outside of the former plating area. The monitoring wells were installed on the northern, eastern, and southern portions of the Magnusonic Devices, Inc. property.

From the soil borings, a total of two hundred two (202) soil samples were collected and delivered to an environmental laboratory for analyses. Groundwater samples were also collected from the six (6) monitoring wells for laboratory analyses.

From the laboratory analyses it was determined that two (2) areas had elevated levels of contaminants; the northernmost portion of the property, and eastside storm-drain. The laboratory analyses of the six (6) soil borings completed in the area of the rear, industrial leaching pools indicated that no elevated concentrations of contaminants were present, with several minor exceptions. However, due to the alleged discharge of hazardous waste into these leaching pools, the NYSDEC requested that the pools be addressed as an IRM.

The laboratory results associated with the samples collected from the northernmost portion of the property indicated the presence of iron, lead, magnesium, zinc, and copper in concentrations greater than twenty-five (25) ppm. Semi-volatile compounds were detected in two (2) samples, but at concentrations below method detection limits.

During sampling of the east-side stormdrain, sludge samples indicated the presence of chromium, hexavalent chromium, copper, lead, magnesium, nickel, and zinc. Also detected were volatile organic compounds: 1,1 dichloroethane, tetrachloroethane, toluene, and xylene. The semi-volatile 1,2,4 trichlorobenzene was detected at 200 ppm.

The preliminary sampling investigation, in connection with preparation of the IRM work plan, was performed in the area of the east-side stormdrain and the two (2) rear, industrial leaching pools. Upon reviewing the results of the preliminary sampling investigation, the NYSDEC determined that an IRM would not be necessary. The results of the investigation will be used as part of the RI/FS.

1.1 Site Characteristics

The site is located in an area of Hicksville, New York which consists of industrial and commercial properties. The nearest non-industrial/non-commercial properties are the residential developments located south of Duffy Avenue.

Site topography is essentially flat, with a slope of less than three percent (3%). No naturally occurring surface water bodies exist within the site area. Site drainage is directed by surface-grading to drywells located throughout the property; see Figure 1.0, Plot Plan.

The site is presently vacant and has not been used for any purpose since Magnusonic Devices Inc. vacated the property in 1987.

2.0 SITE SAMPLING PURPOSE

The purpose of site sampling was to estimate the volume and character of contaminated soil, if any; and to determine the associated cost of soil excavation and disposal for inclusion in the IRM work plan. Additionally, the site sampling was designed to enable correlation of the physical appearance of contaminated soil with chemical analysis; in order to perform consistent and accurate screening during excavation associated with the IRM.

2.1 Sampling Locations

The sample study area consisted of three (3) primary locations within the site; see Figure 2.0. The areas sampled were the alleged locations of on-site industrial waste disposal: 1) drywell that abuts the eastern building wall, outside of the decommissioned plating area, 2) east-cesspool outside, and in back of, the subject building, 3) west-cesspool outside, and in back of, the subject building. Cesspools (2,3) were allegedly used for disposal of industrial wastes prior to connection of the facility to the Nassau County Sewer System.

2.2 Sampling Methodology

The procedures and equipment used during the sampling investigation were those recommended by the Environmental Protection Agency (EPA) in Samplers and Sampling Procedures for Hazardous Waste Streams, January 1980.

The sampling matrix was exclusively soil/sludge. A drilling rig was used to collect the soil samples. Samples were collected with a steel, split-spoon sampler and stainless steel hand sampling equipment (e.g., hand-auger and dredge sampler). All sampling equipment was constructed of inert material. The split-spoon sampler, dredge sampler, and all sampling tools (e.g., trowel or scoop) were decontaminated prior to each use with a solution of Alconox and deionized water, and then rinsed with deionized water.

A NYSDEC approved well drilling contractor performed the soil borings. Soil borings were performed in each of the two (2) rear, leaching pools. Continuous split-spoon sampling was performed in each pool to a depth of ten (10) feet below the bottom surface. Two (2) soil samples were collected for laboratory analyses from each pool; at depths of zero (0) to two (2) feet and six (6) to eight (8) feet. The sample collected at 0'-2' was analyzed for full TCLP disposal parameters, including ignitability, corrosivity, and reactivity. The sample collected at 6' to 8' was analyzed for Total TCL parameters: metals, volatile organics, and semi-volatile organics. The specific analyses were performed in order to determine the depth to which excavation of soil would be required, if contamination was present in the samples.

The east side storm drain was also sampled. A sediment sample was collected from this location with a stainless steel hand-auger at a depth of zero (0) to two (2) feet. The sample was analyzed for full TCLP disposal parameters.

One (1) soil sample was collected at a depth of zero (0) to two (2) feet from the nearby Cantiague Park, located approximately one-thousand five-hundred (1,500) feet north of the site. This sample was procured for the purpose of establishing background

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contaminant levels and site clean-up guidelines. The soil sample was procured with a stainless steel hand auger and was analyzed for Total TCL volatile organics and semi-volatile organics and TAL metals.

To ensure sample integrity and laboratory accuracy one (1) trip blank sample was analyzed for volatile organics, one (1) field blank sample was collected from decontaminated sampling equipment and analyzed for TCLP parameters, and one (1) field blank sample will be collected and analyzed for Total TCL volatile organics and semi-volatile organics and TAL metals.

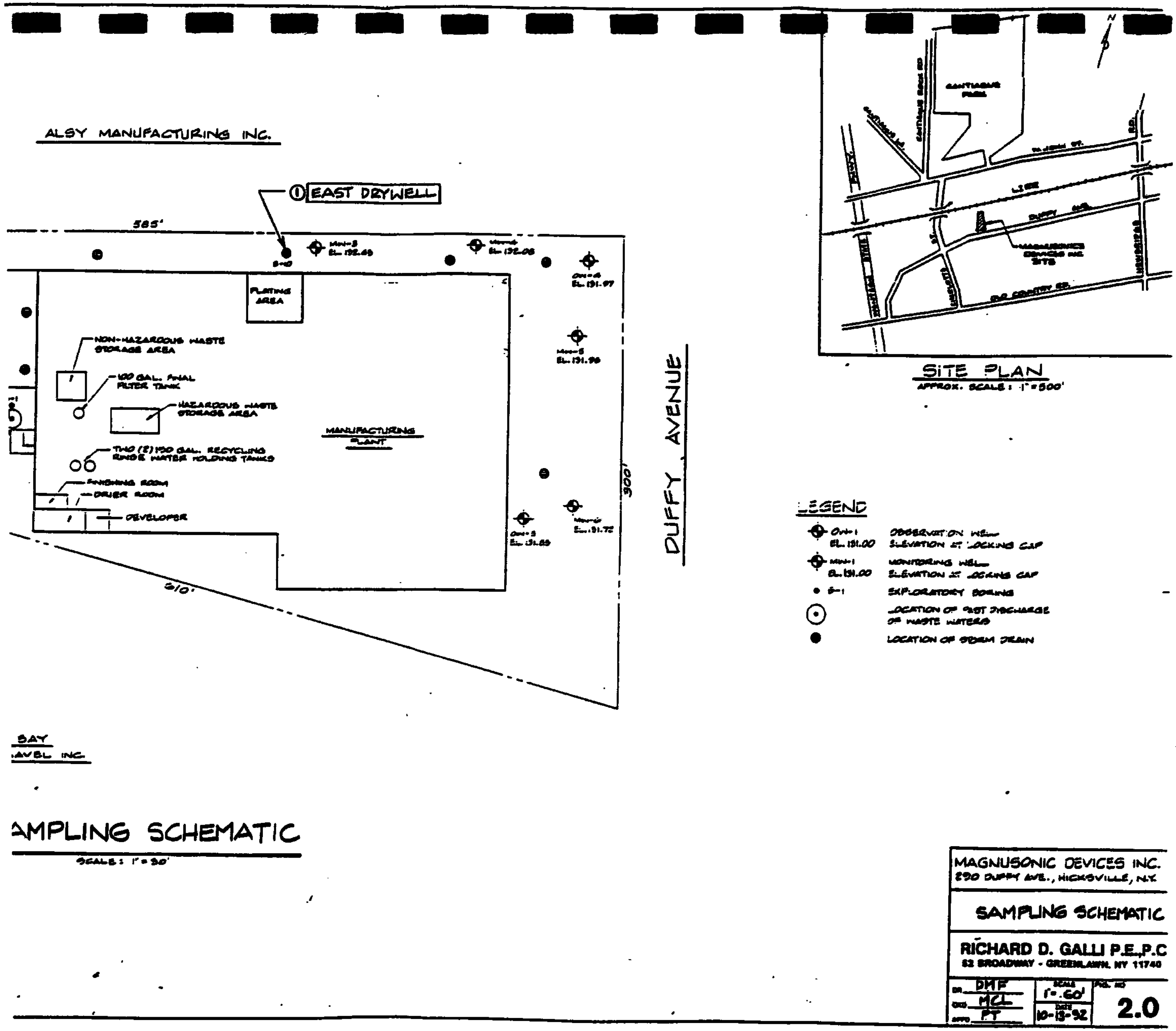
3.0 LABORATORY ANALYSES RESULTS

All samples were analyzed by H2M Labs, Inc., a certified environmental laboratory, located in Melville, New York; see Appendix D, H2M Labs Chain-of-Custody. Samples were tested using the December 1991 Analytical Services Protocol. Toxicity Characteristic Leaching Procedure (TCLP) and Target Analytes List (TAL) analyses were performed. In addition, all samples were analyzed for flash-point, corrosivity (pH), and reactivity using RCRA analyses protocol.

In general, the results of the laboratory analyses indicated that the areas of suspected contamination were non-hazardous. Certain individual samples were found to contain elevated levels of contaminants.

With regard to groundwater quality, the Safe Drinking Water Act and 6 NYCRR Parts 700 through 705 are considered to be the chemical-specific groundwater standards and are applicable to the subject site. Therefore, the soil sample leachate will be compared to the above regulations to ascertain cleanup levels in site soils which would adequately protect groundwater quality. This evaluation, may require groundwater modeling to ascertain whether there are any local impacts on groundwater quality from on-site sources.

To determine site water quality, when interpreting the laboratory data, the NYSDEC <u>Water Quality Regulations for Surface Waters and Groundwaters</u> was referenced. The groundwater standards for Class GA fresh groundwaters were used as the action level. Class GA groundwater is considered to be fresh and potable by the


ALSY MANUFACTURING INC.
① EAST DRYWELL
585'
PLATING AREA
NON-HAZARDOUS WASTE STORAGE AREA
100 GAL. FINAL FILTER TANK
HAZARDOUS WASTE STORAGE AREA
MANUFACTURING PLANT
TWO (2) 150 GAL. RECYCLING RINSE WATER HOLDING TANKS
FINISHING ROOM
DRIER ROOM
DEVELOPER
510'
900'
DUFFY AVENUE
SITE PLAN
APPROX. SCALE: 1"=500'
LEGEND
OBSERVATION WELL ELEVATION AT LOCKING CAP
MONITORING WELL ELEVATION AT LOCKING CAP
EXPLORATORY BORING
LOCATION OF PAST DISCHARGE OF WASTE WATERS
LOCATION OF STORM DRAIN
BAY
AVEL INC.
AMPLING SCHEMATIC
SCALE: 1"=30'
MAGNUSONIC DEVICES INC.
290 DUFFY AVE., HICKSVILLE, N.Y.
SAMPLING SCHEMATIC
RICHARD D. GALLI P.E.,P.C
52 BROADWAY - GREENLAWN, NY 11740
DMF
MCL
PT
1"=60'
10-13-92
2.0

[redacted]

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NYSDEC.

Tables 1.0 through 7.0 display the laboratory analyses results and only contain the analytes that were detected; regardless of whether the levels were below the recommended action levels. Listed analytes that were above the recommended action levels are displayed in parenthesis.

TABLE 1.0

CHEMICAL PROPERTIES

Sample Location & Depth	pH (Corrosive)	Flash-point (°C)	Reactive to Water	Releases Sulfide (mg/kg)	Releases Cyanide (ug/kg)
West Pool; 0'- 2'	5.0	>60.0	No	228.0	No
East Pool; 0'- 2'	3.6	>60.0	No	501.0	No
East Dry-well; 0'- 2'	6.0	>60.0	No	No	No

Note: All measured values that exceeded the NYSDEC Water Quality Standard are displayed in bold type and are in parentheses.

TABLE 2.0

VOLATILE ORGANICS: EAST-POOL SHALLOW (0' - 2')

Analyte	Detected Concentration (mg/l)	NYSDEC Water Quality Standard (ug/l)
Benzene	(13,000.0E)	0.7

Note: E = Exceeded calibration range of measuring instrument. Indicates the existence of a potential, probable higher concentration.

TABLE 3.0

INORGANIC ANALYSIS: FIELD BLANK (WATER)

Analyte	Detected Conc. (ug/l)	NYSDEC Water Quality Standard (ug/l)
Aluminum	27.8	50.0
Calcium	81.2	NA
Iron	58.5	300.0
Sodium	318.0	NA
Zinc	28.8	NA

TABLE 4.0

INORGANIC ANALYSIS/TCLP METAL: EAST-POOL SHALLOW (0' - 2')

Analyte	Detected Concentration (ug/l)	NYSDEC Standard (ug/l)
Barium	67.6	1000.0

TABLE 5.0

INORGANIC ANALYSIS/TAL: EAST-POOL DEEP (6' - 8')

Analyte	Detected Concentration (ppm)
Aluminum	1470.0
Arsenic	1.3
Barium	4.2
Calcium	45.8
Chromium	13.4
Copper	18.1
Iron	4660.0
Lead	2.2
Magnesium	156.0
Manganese	17.2
Nickel	16.5
Potassium	136.0
Sodium	42.0
Thallium	1.4
Vanadium	3.7
Zinc	7.0

TABLE 6.0

INORGANIC ANALYSIS/TAL: WEST-POOL DEEP (6' - 8')

Analyte	Detected Concentration (ppm)
Aluminum	2290.0
Arsenic	1.9
Barium	5.6
Beryllium	0.23
Calcium	72.1
Chromium	11.9
Copper	(16.8)
Iron	5720.0
Lead	2.0
Magnesium	376.0
Manganese	18.9
Nickel	12.7
Potassium	197.0
Sodium	36.6
Thallium	0.95
Vanadium	6.1
Zinc	9.0

TABLE 7.0

INORGANIC ANALYSIS/TCLP METALS: WEST-POOL SHALLOW (0' - 2')

Analyte	Detected Concentration (ug/l)	NYSDEC Water Quality Standard (ug/l)
Barium	53.6	1,000.0
Silver	13.4	50.0

TABLE 8.0

INORGANIC ANALYSIS/TCLP METALS: DRY-WELL WATER

Analyte	Detected Concentration (ug/l)	NYSDEC Water Quality Standard (ug/l)
Barium	243.0	1,000.0
Cadmium	18.3	10.0
Chromium	16.5	50.0
Lead	3040.0	25.0
Silver	10.0	50.0

4.0 CONCLUSIONS

Isolated areas of contamination are located within the two (2) areas sampled during this investigation. Elevated levels of benzene, cadmium, copper and lead were detected. Concentrations of the referenced analytes exceeded the NYSDEC Hazardous Waste Regulatory Levels (August 1992) and/or the NYSDEC Water Quality Regulations for Surface Waters and Groundwaters (September 1, 1991).

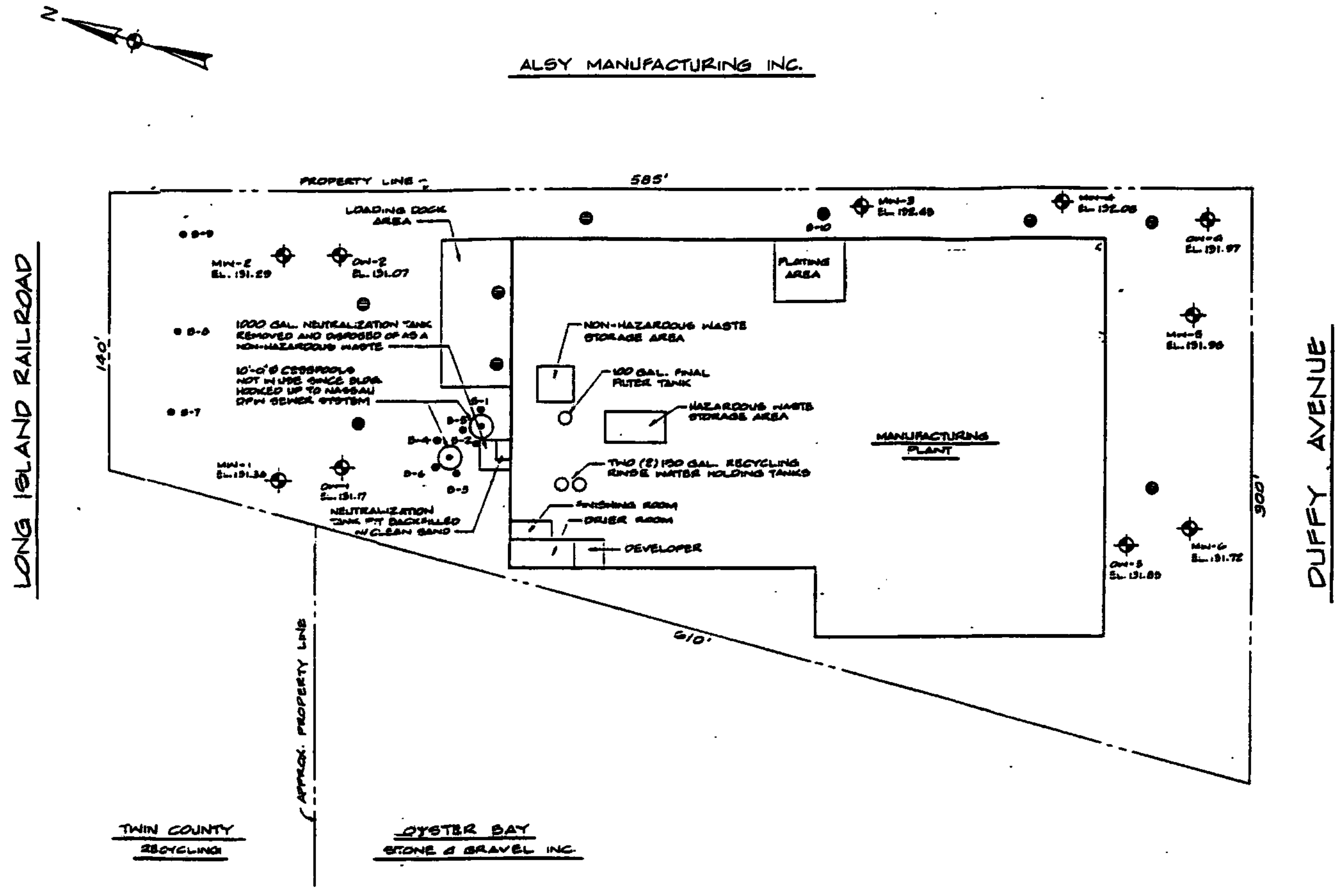
The TCLP leachate extract from the shallow sample (0'-2') collected from the east-pool contained greater than 13,000 ug/l of benzene. The NYSDEC Water Quality Standard is 0.7 ug/l. The concentration exceeded the calibration range of the laboratory instruments used to analyze the sample. Benzene was not detected in the sample collected at a depth of 6'-8' in the same pool.

The total TAL sample collected at a depth of 6'-8' from the east-pool, contained 18.1 ppm of copper. The soil sample collected at a depth of 6'-8' from the west-pool contained 16.8 ppm of copper. The NYSDEC Hazardous Waste Regulatory Levels do not list copper as a toxic constituent.

The TCLP leachate extract from the sample collected from the east drywell contained concentrations of cadmium and lead that exceeded the NYSDEC Hazardous Waste Regulatory Levels. The referenced sample contained 18.3 ug/l of cadmium and 3040.0 ug/l of lead. The NYSDEC Water Quality Standard for these parameters are 4.0 ppb and 8.0 ppb, respectively.

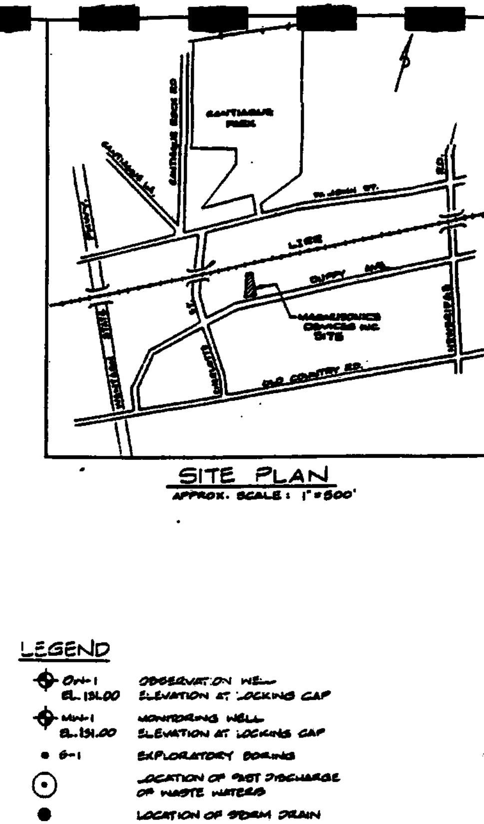
Recommendations based on the results of this sampling investigation will be contained in the Remedial Investigation/Feasibility Study Report.

FIGURES



PLOT PLAN

SCALE: 1" = 30'



MAGNUSONIC DEVICES INC.
290 DUFFY AVENUE, HICKSVILLE, NY

PLOT PLAN

LIFE SUPPORT SCIENCES INC.
294 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917

DATE	SCALE	DRAWING NO.
11-20-92	1" = 60'	1.0

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APPENDIX A

APPENDIX B

Department of Environmental Conservation

WATER QUALITY REGULATIONS FOR SURFACE WATERS AND GROUNDWATERS

6NYCRR
PARTS 700-705
Effective September 1, 1991

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
Albany, New York

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Table 1
(cf. section 703.5)

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Acenaphthene (83-32-9)	A, A-S, AA, AA-S	20	H(WS)	D
Alachlor (15972-60-8)	GA	35	H(WS)	F
Aldicarb (116-06-3)	A, A-S, AA, AA-S	7	H(WS)	B
Aldicarb and Methomyl (116-06-3; 16752-77-5)	GA	0.35	H(WS)	F
Aldrin (309-00-2)	GA	ND	H(WS)	F
	A, A-S, AA, AA-S, B, C	*	H(B)	
	D	*	H(B)	
	SA, SB, SC	*	H(B)	
	SD	*	H(B)	

Remarks: * Refer to standards for "Aldrin and Dieldrin."

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Aldrin and Dieldrin (309-00-2; 60-57-11)	A, A-S, AA, AA-S, B, C	0.001	H(B)	K
	D	0.001	H(B)	K
	SA, SB, SC	0.001	H(B)	K
	SD	0.001	H(B)	K
Alkyl dimethyl benzyl ammonium chloride (68391-01-5)	A, A-S, AA, AA-S, B, C	*	A	

Remarks: * Refer to standards for "Quaternary ammonium compounds."

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Ammonia and Ammonium (7664-41-7; Not Applicable)	A, A-S, AA, AA-S	2,000*	H(WS)	H
	GA	2,000*	H(WS)	H
	A, A-S, AA, AA-S, B, C	**	A	N
	D	**	A	Q

Remarks: * $NH_3 + NH_4^+$ as N.

** Un-ionized ammonia as NH_3; tables below provide the standard in ug/L at varying pH and temperature for different classes and specifications. Linear interpolation between the listed pH values and temperatures is applicable.

Classes A,A-S, AA, AA-S, B, C with the (T) or (TS) Specification

pH	0°C	5°C	10°C	15°-30°C
6.50	0.7	0.9	1.3	1.9
6.75	1.2	1.7	2.3	3.3
7.00	2.1	2.9	4.2	5.9
7.25	3.7	5.2	7.4	11
7.50	6.6	9.3	13	19
7.75	11	15	22	31
8.0-9.0	13	18	25	35

Classes A, A-S, AA, AA-S, B, C without the (T) or (TS) Specification

pH	0°C	5°C	10°C	15°C	20°-30°C
6.50	0.7	0.9	1.3	1.9	2.6
6.75	1.2	1.7	2.3	3.3	4.7
7.00	2.1	2.9	4.2	5.9	8.3
7.25	3.7	5.2	7.4	11	15
7.50	6.6	9.3	13	19	26
7.75	11	15	22	31	43
8.0-9.0	13	18	25	35	50

Class D

pH	0°C	5°C	10°C	15°C	20°C	25°-30°C
6.50	9.1	13	18	26	36	51
6.75	15	21	30	42	59	84
7.00	23	33	46	66	93	131
7.25	34	48	68	95	140	190
7.50	45	64	91	130	180	260
7.75	56	80	110	160	220	320
8.0-9.0	65	92	130	180	260	370

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L) µg	TYPE	BASIS CODE
Arsenic (Not Applicable)	A, A-S, AA, AA-S	50	H(WS)	G
	GA	25	H(WS)	F
	A, A-S, AA, AA-S, B, C	190	A	N
	D	360	A	Q
	SA, SB, SC	63	A	N
	SD	120	A	Q
Remarks:	Aquatic standards apply to dissolved form.			
Atrazine (1912-24-9)	GA	7.5	H(WS)	F
Azinphosmethyl (86-50-0)	GA	4.4	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.005	A	N
	SA, SB, SC	0.01	A	N
Barium (Not Applicable)	A, A-S, AA, AA-S	1,000	H(WS)	G
	GA	1,000	H(WS)	F
Benefin (1861-40-1)	GA	35	H(WS)	F
Benzene (71-43-2)	A, A-S, AA, AA-S	0.7	H(WS)	A
	GA	0.7	H(WS)	A
Benzidine (92-87-5)	A, A-S, AA, AA-S, B, C	0.1	A	N
	D	0.1	A	Q
Benzo(a)pyrene (50-32-8)	GA	ND	H(WS)	F
Beryllium (Not Applicable)	A, A-S, AA, AA-S, B, C	*	A	N
Remarks:	* 11 ug/L when hardness is less than or equal to 75 ppm. 1100 ug/L when hardness is greater than 75 ppm. Standards apply to acid-soluble form.			
Bis (2-chloro-ethyl) ether (111-44-4)	GA	1.0	H(WS)	F

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WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Bis (2-ethylhexyl) phthalate (117-81-7)	GA	50	H(WS)	J
	A, A-S, AA, AA-S, B, C	0.6	A	N
Boron (Not Applicable)	GA	1,000	H(WS)	H
	A, A-S, AA, AA-S, B, C	10,000	A	N
	SA, SB, SC	1,000	A	N
Remarks:	Aquatic standards apply to acid-soluble form.			
Bromacil (314-40-9)	GA	4.4	H(WS)	F
Butachlor (23184-66-9)	GA	3.5	H(WS)	F
Butylate (2008-41-5)	GA	50	H(WS)	J
Cadmium (Not Applicable)	A, A-S, AA, AA-S	10	H(WS)	G
	GA	10	H(WS)	F
	A, A-S, AA, AA-S, B, C	*	A	N
	D	**	A	Q
	SA, SB, SC, I	7.7	A	N
	SD	21	A	Q
Remarks:	* exp (0.7852 [ln (ppm hardness)] - 3.490) ** exp (1.128 [ln (ppm hardness)] - 3.828) Aquatic standards apply to acid-soluble form.			
Captan (133-06-2)	GA	18	H(WS)	F
Carbaryl (63-25-2)	GA	29	H(WS)	F
Carbofuran (1563-66-2)	A, A-S, AA, AA-S	15	H(WS)	B
	A, A-S, AA, AA-S, B, C	1.0	A	N
	D	10	A	Q
Carbon tetrachloride (56-23-5)	GA	5	H(WS)	F
Carboxin (5234-68-4)	GA	50	H(WS)	J

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Chloramben (Not Applicable)	GA	50*	H(WS)	J
Remarks: *	Includes: related forms that convert to the organic acid upon acidification to a pH of 2 or less; and esters of the organic acid.			
Chlordane (57-74-9)	GA	0.1	H(WS)	F
Chloride (Not Applicable)	A, A-S, AA, AA-S	250,000	H(WS)	H
	GA	250,000	H(WS)	H
Chlorine, Total Residual (7782-50-5)	A, A-S, AA, AA-S, B, C	5	A	N
	D	19	A	Q
	SA, SB, SC, I	7.5	A	N
	SD	13	A	Q
Chlorobenzene (108-90-7)	A, A-S, AA, AA-S	20	H(WS)	D
	A, A-S, AA, AA-S, B, C	5	A	N
	D	50	A	R
Chloroform (67-66-3)	A, A-S, AA, AA-S	7	H(WS)	A
	GA	7	H(WS)	A
2-Chloronaphthalene (91-58-7)	A, A-S, AA, AA-S	10	H(WS)	E
Chromium (Not Applicable)	A, A-S, AA, AA-S	50	H(WS)	G
	GA	50	H(WS)	G
	A, A-S, AA, AA-S, B, C	*	A	N
	D	**	A	Q
Remarks:	* exp (0.819 [ln (ppm hardness)] + 1.561) ** exp (0.819 [ln (ppm hardness)] + 3.688) Aquatic standards apply to acid-soluble form.			
Chromium (hexavalent) (Not Applicable)	GA	50	H(WS)	F
	A, A-S, AA, AA-S, B, C	11	A	N
	D	16	A	Q
	SA, SB, SC	54	A	N
	SD	1,200	A	Q
Remarks:	Aquatic standards apply to acid-soluble form.			

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Cobalt (Not Applicable)	A, A-S, AA, AA-S, B, C	5	A	N
Remarks:	Standards apply to acid-soluble form.			
Copper (Not Applicable)	A, A-S, AA, AA-S	200	H(WS)	H
	GA	200	H(WS)	H
	A, A-S, AA, AA-S, B, C	*	A	N
	D	**	A	Q
	SA, SB, SC, I	2.9	A	N
	SD	2.9	A	Q
Remarks:	* exp (0.8545 [ln (ppm hardness)] - 1.465) ** exp (0.9422 [ln (ppm hardness)] - 1.464) Aquatic standards apply to dissolved form.			
Cyanide (Not Applicable)	A, A-S, AA, AA-S	100	H(WS)	H
	GA	100	H(WS)	H
	A, A-S, AA, AA-S, B, C	5.2	A	N
	D	22	A	Q
	SA, SB, SC	1.0	A	N
	SD	1.0	A	Q
Remarks:	Aquatic standards are as free cyanide ($HCN + CN^-$) expressed as CN.			
Dalapon (Not Applicable)	GA	50*	H(WS)	J
Remarks:	* Includes: related forms that convert to the organic acid upon acidification to a pH of 2 or less; and esters of the organic acid.			
DDT, DDD and DDE (50-29-3; 72-54-8; 72-55-9)	A, A-S, AA, AA-S	0.01	H(WS)	A
	GA	ND	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.001	A	S
	D	0.001	A	S
	SA, SB, SC	0.001	A	S
	SD	0.001	A	S
Demeton (8065-48-3; 298-03-3; 126-75-0)	A, A-S, AA, AA-S, B, C	0.1	A	N
	SA, SB, SC	0.1	A	N

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Diazinon (333-41-5)	GA	0.7	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.08	A	N
Di-n-butyl-phthalate (84-74-2)	GA	50	H(WS)	J
Dicamba (1918-00-9)	GA	0.44	H(WS)	F
Dichlorobenzenes (95-50-1; 106-46-7; 541-73-1)	A, A-S, AA, AA-S	20*/30**	H(WS)	D
	GA	4.7***	H(WS)	F
	A, A-S, AA, AA-S, B, C	5	A	N,T
	D	50	A	R

Remarks: * Applies to meta (1,3-) isomer only.
** Applies to para (1,4-) isomer only.
*** Applies to sum of para (1,4-) and ortho (1,2-) isomers only.

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
1,2-Dichloroethane (107-06-2)	A, A-S, AA, AA-S	0.8	H(WS)	A
2,4-Dichlorophenol (120-83-2)	A, A-S, AA, AA-S	0.3	H(WS)	D
	A, A-S, AA, AA-S, B, C	*	A	
	D	*	A	

Remarks: * Refer to standards for "Phenols, total chlorinated."

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
2,4-Dichloro-phenoxyacetic acid (94-75-7)	A, A-S, AA, AA-S	100	H(WS)	G
	GA	4.4	H(WS)	F
Dieldrin (60-57-1)	GA	ND	H(WS)	F
	A, A-S, AA, AA-S, B, C	*	H(B)	
	D	*	H(B)	
	SA, SB, SC	*	H(B)	
	SD	*	H(B)	

Remarks: * Refer to standards for "Aldrin and Dieldrin."

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Dimethyl tetrachloro-terephthalate (1861-32-1)	GA	50	H(WS)	J
Diphenamid (957-51-7)	GA	50	H(WS)	J
Diphenyl-hydrazines (122-66-7; 530-50-7)	GA	ND	H(WS)	F
Dyphylline (479-18-5)	A, A-S, AA, AA-S	50	H(WS)	E
Endosulfan (115-29-7)	A, A-S, AA, AA-S, B, C	0.009	A	N
	D	0.22	A	Q
	SA, SB, SC	0.001	A	N
	SD	0.034	A	Q
Endrin (72-20-8)	A, A-S, AA, AA-S	0.2	H(WS)	G
	GA	ND	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.002	H(B)	K
	D	0.002	H(B)	K
	SA, SB, SC	0.002	H(B)	K
	SD	0.002	H(B)	K
Ethylenethiourea (96-45-7)	GA	ND	H(WS)	F
Ferbam (14484-64-1)	GA	4.2	H(WS)	F
Fluometuron (2164-17-2)	GA	50	H(WS)	J
Fluoride (Not Applicable)	A, A-S, AA, AA-S	1,500	H(WS)	H
	GA	1,500	H(WS)	F
	A, A-S, AA, AA-S, B, C	*	A	N
	D	**	A	N

Remarks: * (0.02) exp(0.907 [ln (ppm hardness)] + 7.394)
** (0.1) exp(0.907 [ln (ppm hardness)] + 7.394)

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Foaming Agents (Not Applicable)	GA	500	H(WS)	F
Remarks:	Determined as methylene blue active substances (MBAS) or by other tests as specified by the commissioner.			
Folpet (133-07-3)	GA	50	H(WS)	J
Gross Alpha Radiation (Not Applicable)	A, A-S, AA, AA-S	*	H(WS)	G
	GA	*	H(WS)	G
Remarks: *	15 picocuries per liter, excluding radon and uranium.			
Gross Beta Radiation (Not Applicable)	A, AA	*	H(WS)	H
	GA	*	H(WS)	H
Remarks: *	1,000 picocuries per liter, excluding strontium-90 and alpha emitters.			
Heptachlor and Heptachlor epoxide (76-44-8; 1024-57-3)	A, A-S, AA, AA-S	0.009	H(WS)	A
	GA	ND	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.001	A	S
	D	0.001	A	S
	SA, SB, SC	0.001	A	S
	SD	0.001	A	S
Hexachloro-benzene (118-74-1)	GA	0.35	H(WS)	F
Hexachloro-butadiene (87-68-3)	A, A-S, AA, AA-S	0.5	H(WS)	A
	A, A-S, AA, AA-S, B, C	1.0	A	N
	D	10	A	Q
	SA, SB, SC	0.3	A	N
	SD	3.0	A	Q
Hexachloro-cyclohexanes (58-89-9; 319-84-6; 319-85-7; 319-86-8; 6108-10-7; 608-73-1)	GA	ND	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.01	A	N
	D	2	A	Q
	SA, SB, SC	0.004	A	N
	SD	0.16	A	Q

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Hexachlorocyclopentadiene (77-47-4)	A, A-S, AA, AA-S	1.0	H(WS)	D
	A, A-S, AA, AA-S, B, C	0.45	A	N
	D	4.5	A	Q
	SA, SB, SC	0.07	A	N
	SD	0.7	A	Q
Hexazinone (51235-04-2)	GA	50	H(WS)	J
Hydrazine (302-01-2)	A, A-S, AA, AA-S, B, C	*	A	N
	D	**	A	Q
Remarks: *	5 ug/L at less than 50 ppm hardness and 10 ug/L at greater than or equal to 50 ppm hardness.			
**	50 ug/L at less than 50 ppm hardness and 100 ug/L at greater than or equal to 50 ppm hardness.			
Hydrogen sulfide (7783-06-4)	A, A-S, AA, AA-S, B, C	2.0*	A	N
	SA, SB, SC	2.0*	A	N
Remarks: *	Undissociated form.			
Hydroquinone (123-31-9)	A, A-S, AA, AA-S, B, C	2.2	A	N
	D	4.4	A	Q
Iron (Not Applicable)	A, A-S, AA, AA-S	300	H(WS)	G
	GA	300*	H(WS)	F
	A, A-S, AA, AA-S, B, C	300	A	N
	D	300	A	Q
Remarks: *	Also see standard for "Iron and Manganese."			
Iron and Manganese (Not Applicable)	GA	500	H(WS)	F
Isodecyl diphenyl phosphate (29761-21-5)	A, A-S, AA, AA-S, B, C	1.7	A	N
	D	22	A	Q

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WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Isothiazolones, total (isothiazolinones) (includes 5-chloro-2- methyl-4 isothiazolin-3-one and 2-methyl-4 isothiazolin-3-one) (Not Applicable)	A, A-S, AA, AA-S, B, C	1	A	N
	D	10	A	Q
Kepone (143-50-0)	GA	ND	H(WS)	F
Lead (Not Applicable)	A, A-S, AA, AA-S	50	H(WS)	G
	GA	25	H(WS)	F
	A, A-S, AA, AA-S, B, C	*	A	N
	D	**	A	Q
	SA, SB, SC	8.6	A	N
	SD	220	A	Q

Remarks: * exp (1.266 [ln (ppm hardness)] - 4.661)
** exp (1.266 [ln (ppm hardness)] - 1.416)
Aquatic standards apply to acid-soluble form.

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Linear alkyl benzene sulfonates (LAS) (Not Applicable)	A, A-S, AA, AA-S, B, C	40*	A	N

Remarks: * LAS with side chains greater than 13 carbons only.

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Magnesium (Not Applicable)	A, A-S, AA, AA-S	35,000	H(WS)	B
Malathion (121-75-5)	GA	7.0	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.1	A	N
	SA, SB, SC	0.1	A	N
Mancozeb (8018-01-7)	GA	1.8	H(WS)	F
Maneb (12427-38-2)	GA	1.8	H(WS)	F

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Manganese (Not Applicable)	A, A-S, AA, AA-S	300	H(WS)	G
	GA	300*	H(WS)	F

Remarks: * Also see standard for "Iron and Manganese."

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Mercury (Not Applicable)	A, A-S, AA, AA-S	2	H(WS)	G
	GA	2	H(WS)	F
Methoxychlor (72-43-5)	A, A-S, AA, AA-S	35	H(WS)	H
	GA	35	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.03	A	N
	SA, SB, SC	0.03	A	N
2-Methyl-4-chloro-phenoxyacetic acid (94-74-6)	GA	0.44	H(WS)	F
Methylene bisthiocyanate (6317-18-6)	A, A-S, AA, AA-S, B, C	1.0	A	N
Methyl methacrylate (80-62-6)	GA	50	H(WS)	J
Metribuzin (21087-64-9)	GA	50	H(WS)	J
Mirex (2385-85-5)	A, A-S, AA, AA-S, B, C	0.001	A	N
	D	0.001	A	Q
	SA, SB, SC	0.001	A	N
Nabam (142-59-6)	GA	1.8	H(WS)	F
Naphthalene (91-20-3)	A, A-S, AA, AA-S	10	H(WS)	D
Niacinamide (98-92-0)	A, A-S, AA, AA-S	500	H(WS)	B
Nickel (Not Applicable)	A, A-S, AA, AA-S, B, C	*	A	N
	D	**	A	Q
	SA, SB, SC	7.1	A	N
	SD	140	A	Q

Remarks: * exp (0.76 [ln (ppm hardness)] + 1.06)
** exp (0.76 [ln (ppm hardness)] + 4.02)
Standards apply to acid-soluble form.

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Nitralin (4726-14-1)	GA	35	H(WS)	F
Nitrate and Nitrite (expressed as N) (Not Applicable)	A, A-S, AA, AA-S	10,000*	H(WS)	G
	GA	10,000	H(WS)	H
Remarks: * Applies only to nitrate.				
Nitrilotri-acetic acid (Not Applicable)	A, A-S, AA, AA-S	3**	H(WS)	A
	GA	3**	H(WS)	A
	A, A-S, AA, AA-S, B, C	5,000*	A	N
Remarks: * Applies to Nitrilotriacetate. ** Includes related forms that convert to nitrilotriacetic acid upon acidification to a pH of 2.3 or less.				
Nitrite (Not Applicable)	GA	***	H(WS)	
	A, A-S, AA, AA-S, B, C	100*/20**	A	N
Remarks: * Warm water fishery waters. ** Cold water fishery waters. *** Refer to standard for "Nitrate and Nitrite."				
Nitrobenzene (98-95-3)	A, A-S, AA, AA-S	30	H(WS)	D
Oxamyl (23135-22-0)	GA	50	H(WS)	J
Paraquat (4685-14-7)	GA	3.0	H(WS)	F
Parathion and Methyl parathion (56-38-2; 298-00-0)	GA	1.5	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.008	A	N,T
Pentachloro-nitrobenzene (82-68-8)	GA	ND	H(WS)	F

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Pentachlorophenol (87-86-5)	A, A-S, AA, AA-S	*	H(WS)	
	GA	*	H(WS)	
	A, A-S, AA, AA-S, B, C	0.4	A	N
	D	**	A	

Remarks: * Refer to standards for "Phenolic compounds (total phenols)."
** Refer to standards for "Phenols, total chlorinated."

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Phenol (108-95-2)	A, A-S, AA, AA-S	*	H(WS)	
	GA	*	H(WS)	
	A, A-S, AA, AA-S, B, C	**	A	
	D	**	A	

Remarks: * Refer to standards for "Phenolic compounds (total phenols)."
** Refer to standards for "Phenols, total unchlorinated."

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Phenolic compounds (total phenols) (Not Applicable)	A, A-S, AA, AA-S	1	H(WS)	H
	GA	1	H(WS)	F
Phenols, total chlorinated (Not Applicable)	A, A-S, AA, AA-S	*	H(WS)	
	GA	*	H(WS)	
	A, A-S, AA, AA-S, B, C	1.0	A	R
	D	1.0	A	R

Remarks: * Refer to standards for "Phenolic compounds (total phenols)."

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Phenols, total unchlorinated (Not Applicable)	A, A-S, AA, AA-S, B, C	5.0	A	R
	D	5.0	A	R
Phenyl ether (101-84-8)	A, A-S, AA, AA-S	10	H(WS)	D
Phorate and Disulfoton (298-02-2; 298-04-4)	GA	ND	H(WS)	F

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WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Picloram (Not Applicable)	GA	50*	H(WS)	J

Remarks: * Includes: related forms that convert to the organic acid upon acidification to a pH of 2 or less; and esters of the organic acid.

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Polychlorinated biphenyls (Not Applicable)	A, A-S, AA, AA-S	0.01	H(WS)	A
	GA	0.1	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.001	A	S
	D	0.001	A	S
	SA, SB, SC	0.001	A	S
	SD	0.001	A	S
Principal organic contaminant (Not Applicable)	GA	5*	H(WS)	J

Remarks: * This standard applies to any and every individual substance that is in the principal organic contaminant classes, except any substance that has a standard for class GA waters listed elsewhere in this Table. A less stringent guidance value for an individual substance may be substituted for this standard if so determined by the Commissioner of the New York State Department of Health, pursuant to 10 NYCRR section 5-1.51(g).

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Prometon (1610-18-0)	GA	50	H(WS)	J
Propachlor (1918-16-7)	GA	35	H(WS)	F
Propanil (709-98-8)	GA	7.0	H(WS)	F
Propazine (139-40-2)	GA	16	H(WS)	F
Propham (122-42-9)	GA	50	H(WS)	J

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Quaternary ammonium compounds (including dimethyl benzyl ammonium chloride and dimethyl ethyl benzyl ammonium chloride) (Not Applicable)	A, A-S, AA, AA-S, B, C	10	A	N
Radium 226 (Not Applicable)	A, AA	*	H(WS)	H
	GA	*	H(WS)	H
Remarks:	* 3 picocuries per liter.			
Radium 226 and Radium 228 (Not Applicable)	A, A-S, AA, AA-S	*	H(WS)	G
	GA	*	H(WS)	G
Remarks:	* 5 picocuries per liter.			
Selenium (Not Applicable)	A, A-S, AA, AA-S	10	H(WS)	G
	GA	10	H(WS)	G
	A, A-S, AA, AA-S, B, C	1.0*	A	N
Remarks:	* Aquatic standard applies to acid-soluble form.			
Silver (Not Applicable)	A, A-S, AA, AA-S	50	H(WS)	G
	GA	50	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.1*	A	N
	D	**	A	Q
	SD	2.3	A	Q
Remarks:	* Applies to ionic silver. ** exp(1.72 [ln (ppm hardness)] - 6.52) Acid-soluble form applies to D and SD Classes.			
Simazine (122-34-9)	GA	50	H(WS)	J
Sodium (Not Applicable)	GA	20,000	H(WS)	H

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WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Strontium 90 (Not Applicable)	A, A-S, AA, AA-S	8 pCi/L*	H(WS)	G
Remarks:	* If two or more radionuclides are present, the sum of their doses shall not exceed an annual potential dose of 4 millirems per year.			
Styrene (100-42-5)	A, A-S, AA, AA-S	50	H(WS)	D
	GA	*	H(WS)	
Remarks:	* Refer to standard for Principal organic contaminant.			
Sulfate (Not Applicable)	A, A-S, AA, AA-S	250,000	H(WS)	G
	GA	250,000	H(WS)	F
Sulfite (Not Applicable)	A, A-S, AA, AA-S, B, C	200	A	N
Tebuthiuron (34014-18-1)	GA	50	H(WS)	J
Terbacil (5902-51-2)	GA	50	H(WS)	J
Tetrachlorobenzenes (95-94-3; 634-66-2; 634-90-2)	A, A-S, AA, AA-S	10	H(WS)	D
2,3,7,8-Tetrachlorodibenzo-p-dioxin (1746-01-6)	GA	0.000035	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.000001	H(B)	K
	D	0.000001	H(B)	K
Tetrachloroterephthalic acid (2136-79-0)	GA	50	H(WS)	J
Thallium (Not Applicable)	A, A-S, AA, AA-S, B, C	8	A	N
	D	20	A	Q
Remarks:	Standards apply to acid-soluble form.			

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(Continued)

WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Theophylline (58-55-9)	A, A-S, AA, AA-S	40	H(WS)	B
Thiram (137-26-8)	GA	1.8	H(WS)	F
Toxaphene (8001-35-2)	GA	ND	H(WS)	F
	A, A-S, AA, AA-S, B, C	0.005	A	N
	D	1.6	A	Q
	SA, SB, SC	0.005	A	N
Trichloro-benzenes (87-61-6; 108-70-3; 120-82-1; 12002-48-1)	A, A-S, AA, AA-S	10	H(WS)	D
	A, A-S, AA, AA-S, B, C	5	A	N,T
	D	50	A	R
	SA, SB, SC	5	A	N,T
	SD	50	A	R
1,1,2-Trichloro-ethane (79-00-5)	A, A-S, AA, AA-S	0.6	H(WS)	A
2,4,5-Trichlorophen-oxyacetic acid (93-76-5)	GA	35	H(WS)	F
2,4,5-Trichlorophen-oxypropionic acid (93-72-1)	A, A-S, AA, AA-S	10	H(WS)	G
	GA	0.26	H(WS)	F
Trifluralin (1582-09-8)	GA	35	H(WS)	F
Triphenyl-phosphate (115-86-6)	A, A-S, AA, AA-S, B, C	4	A	N
	D	40	A	Q
Tritium (Not Applicable)	A, A-S, AA, AA-S	*	H(WS)	G

Remarks: * 20,000 picocuries per liter; if two or more radionuclides are present, the sum of their annual dose equivalent to the total body or any organ shall not exceed 4 millirems per year.

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WATER QUALITY STANDARDS
SURFACE WATERS AND GROUNDWATER

SUBSTANCE (CAS NO.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
Uranyl ion (Not Applicable)	GA	5,000	H(WS)	H
Vanadium (Not Applicable)	A, A-S, AA, AA-S, B, C	14	A	H
	D	190	A	Q
Remarks:	Standards apply to acid-soluble form.			
Vinyl chloride (75-01-4)	GA	2	H(WS)	G
Zinc (Not Applicable)	A, A-S, AA, AA-S	300	H(WS)	H
	GA	300	H(WS)	H
	A, A-S, AA, AA-S, B, C	30	A	N
	D	*	A	Q
	SA, SB, SC	58	A	N
	SD	170	A	Q
Remarks:	* exp (0.83 [ln (ppm hardness)] + 1.95) Aquatic standards apply to acid-soluble form.			
Zineb (12122-67-7)	GA	1.8	H(WS)	F
Ziram (137-30-4)	GA	4.2	H(WS)	F

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APPENDIX C

HAZARDOUS WASTE REGULATORY LEVELS FOR TOXICITY CHARACTERISTIC

CONSTITUENT	REGULATORY LEVEL (mg/L)
Arsenic	5.0
Barium	100.0
Benzene	0.5*
Cadmium	1.0
Carbon tetrachloride	0.5*
Chlordane	0.03*
Chlorobenzene	100.0*
Chloroform	6.0*
Chromium	5.0
o-Cresol	200.0*
m-Cresol	200.0*
Cresol (TOTAL)	200.0*
2,4-D	10.0
1,4-Dichlorobenzene	7.5*
1,2-Dichloroethane	0.5*
1,1-Dichloroethylene	0.7*
2,4-Dinitrotoluene	0.13*
Endrin	0.02
Heptachlor (and its epoxide)	0.008*
Hexachlorobenzene	0.13*
Hexachloro-1,3butadiene	0.5*
Hexachloroethane	3.0*
Lead	5.0
Lindane	0.4
Mercury	0.2

HAZARDOUS WASTE REGULATORY LEVELS FOR TOXICITY CHARACTERISTIC (Cont'd)

CONSTITUENT	REGULATORY LEVEL (mg/L)
Methoxychlor	10.0
Methyl ethyl ketone	200.0*
Nitrobenzene	2.0*
Pentachlorophenol	100.0*
Pyridine	5.0*
Selenium	1.0
Silver	5.0
Tetrachloroethylene	0.7*
Toxaphene	0.5
Trichloroethylene	0.5*
2,4,5-Trichlorophenol	400.0*
2,4,6-Trichlorophenol	2.0*
2,4,5-TP (Silvex)	1.0
Vinyl chloride	0.2*

* New Toxicity Characteristics Effective 9/25/90

TABLE 1
Guidance Values For Gasoline Contaminated Soil*

Compound	EPA Method	Detection Limit[1] (ppb) Liquid	Detection Limit[1] (ppb) Solid	TCLP Extraction Guidance Value[2] C_w (ppb)	TCLP Alternative Guidance Value C_a (ppb)	Human Health Guidance Value C_h (ppb)	Sediment Guidance Value C_s (ppb)
Benzene	8021 (8020)	1	2	0.7	14	2.4×10^4	
Ethylbenzene	8021 (8020)	1	2	5	100	8.0×10^6	
Toluene	8021 (8020)	1	2	5	100	2.0×10^7	
o-Xylene	8021 (8020)	2	2	5	100	2.0×10^8	
m-Xylene	8021 (8020)	2	2	5	100	2.0×10^8	
p-Xylene	8021 (8020)	2	2	5	100	***	
Mixed Xylenes	8021 (8020)	2	2	5	100	2.0×10^8	
Isopropylbenzene	8021	1	1	5	100	***	
n-Propylbenzene	8021	1	1	5	100	***	
p-Isopropyltoluene	8021	1	1	5	100	***	
1,2,4-Trimethylbenzene	8021	1	1	5	100	***	
1,3,5-Trimethylbenzene	8021	1	1	5	100	***	
n-Butylbenzene	8021	1	1	5	100	***	
sec-Butylbenzene	8021	1	1	5	100	***	
Naphthalene	8021	1	1	10	200	3.0×10^5	
Methyl t-butyl ether (MTBE)[3]	8021 (8020)	1	1	50	1,000	***	

***Nuisance Characteristics Guidance:**

No petroleum-type odors.

No individual contaminant in soil at greater than 10,000 ppb.

[1] The listed Detection Limits are Practical Quantitation Limits (PQLs). The Method Detection Limit (MDL) is the best possible detection. Laboratories report the Practical Quantitation Limit (PQL), which is generally 4 times the MDL. Efforts should be made to obtain the best detection possible when selecting a laboratory. When the Guidance Value or standard is below the detection limit, achieving the detection limit will be considered acceptable for meeting the Guidance Value or standard.

[2] The TCLP Extraction Guidance Values are equal to the NYSDEC groundwater quality standards or Guidance Values, or the NYSDOH drinking water quality standards or Guidance Values, whichever is more stringent.

[3] Methyl t-butyl ether (MTBE) is not a target compound of Methods 8021 and 8020, but MTBE may be determined using these methods with appropriate quality assurance and quality control measures.

*** No Guidance Value identified in EPA HEAST Report.

TABLE 2
Guidance Values for Fuel Oil Contaminated Soil*

Compound	EPA Method	Detection Limit[1] (ppb)		TCLP Extraction Guidance Value[2] C_w (ppb)	TCLP Alternative Guidance Value C_a (ppb)	Human Health Guidance Value C_h (ppb)	Sediment Guidance Value C_s (ppb)	
		Liquid	Solid				Fresh	Marine
Benzene	8021 (8020)	1	2	0.7	14	2.4×10^4		
Ethylbenzene	8021 (8020)	1	2	5	100	8.0×10^6		
Toluene	8021 (8020)	1	2	5	100	2.0×10^7		
o-Xylene	8021 (8020)	2	2	5	100	2.0×10^8		
m-Xylene	8021 (8020)	2	2	5	100	2.0×10^8		
p-Xylene	8021 (8020)	2	2	5	100	***		
Mixed Xylenes	8021 (8020)	2	2	5	100	2.0×10^8		
Isopropylbenzene	8021	1	1	5	100	***		
n-Propylbenzene	8021	1	1	5	100	***		
p-Isopropyltoluene	8021	1	1	5	100	***		
1,2,4-Trimethylbenzene	8021	1	1	5	100	***		
1,3,5-Trimethylbenzene	8021	1	1	5	100	***		
n-Butylbenzene	8021	1	1	5	100	***		
sec-Butylbenzene	8021	1	1	5	100	***		
t-Butyl benzene	8021	1	1	5	100	***		
Naphthalene[3]	8021 (8270)	1 (6)	1 (330)	10	200	3.0×10^5		
Anthracene	8270	8	330	50	1,000	2.0×10^7		
Fluorene	8270	8	330	50	1,000	3.0×10^6		
Phenanthrene	8270	22	330	50	1,000	***		
Pyrene	8270	8	330	50	1,000	2.0×10^6		
Acenaphthene	8270	8	330	20	400	5.0×10^6		
Benzo(a)anthracene	8270	31	330	.002	.04[4]	220	33	18
Fluoranthene	8270	9	330	50	1,000	3.0×10^6		

(CONTINUED ON THE NEXT PAGE)

TABLE 2 (Cont'd)
Guidance Values for Fuel Oil Contaminated Soil*

Compound	EPA Method	Detection Limit (ppb)		TCLP Extraction Guidance Value[2] C_w (ppb)	TCLP Alternative Guidance Value C_a (ppb)	Human Health Guidance Value C_h (ppb)	Sediment Guidance Value C_s (ppb)	
		Liquid	Solid				Fresh	Marine
Benzo(b)fluoranthene	8270	19	330	.002	.04[4]	220	33	18
Benzo(k)fluoranthene	8270	10	330	.002	.04[4]	220	33	18
Chrysene	8270	10	330	.002	.04[4]	***	33	18
Benzo(a)pyrene	8270	10	330	.002	.04[4]	61	33	18
Benzo(g,h,i)perylene	8270	10	330	.002	.04[4]	***		
Indeno(1,2,3-cd)pyrene	8270	10	330	.002	.04[4]	***		
Dibenz(a,h)anthracene	8270	10	330	50	1,000	14		

* **Nuisance Characteristics Guidance:**
No Petroleum-type odors.
No individual contaminant in soil at greater than 10,000 ppb.

[1] The listed Detection Limits are Practical Quantitation Limits (PQL's). The Method Detection Limit (MDL) is the best possible detection. Laboratories report the Practical Quantitation Limit (PQL), which is generally 4 times the MDL. Efforts should be made to obtain the best detection possible when selecting a laboratory. When the Guidance Value or standard is below the detection limit, achieving the detection limit will be considered acceptable for meeting the Guidance Value or standard.

[2] The TCLP Extraction Guidance Values are equal to the NYSDEC groundwater quality standards or Guidance Values, or the NYSDOH drinking water quality standards or Guidance Values, whichever is more stringent.

[3] For naphthalene analysis in a liquid matrix, both Method 8021 and Method 8270 can provide satisfactory levels for comparison to the C_w of 10 ppb.

For naphthalene analysis in a solid matrix, Method 8021 is preferred over Method 8270 for comparison to the C_a of 200 ppb. If the C_a Guidance Value is not being used in the soil evaluation, then both Method 8021 and 8270 can provide satisfactory detection levels for comparison to the C_h of 3.0×10^5, and nuisance characteristic of 10,000 ppb.

[4] Due to the high detection limit for a solid matrix, the TCLP Extraction Method must be used to demonstrate groundwater quality protection for these compounds.

*** No Guidance Value identified in EPA HEAST Report.

APPENDIX D

H2M LABS, INC.

Environmental and Industrial Analytical Laboratory
575 Broad Hollow Road, Melville, N.Y. 11747-5076
(516) 694-3040
FAX: 516-694-4122

EXTERNAL CHAIN OF CUSTODY

PROJ. NO.

PROJECT NAME

SAMPLERS: (Signature)/Client

DELIVERABLES:

Refrigerator #

SAMPLE CONTAINER DESCRIPTION: 40 ml vial / 40 ml vial; 1 liter Glass / 8 oz Jar; 1000 ml Plastic w/HNO3 / 8 oz Jar; 1000 ml Plastic w/NaOH / 8 oz Jar

NOTES: TCL Analysis
Field + Trip Blank Containers
Soil Sample Containers

ANALYSIS REQUESTED

DATE	TIME	MATRIX	FIELD I.D.	TOTAL NO. OF CONTAINERS	ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB					INORG.: Metal	INORG.: CN	LAB I.D. No.	REMARKS
6/9/92	4:15	S	BACKGROUND	7	3	2						1	1		MS/MSD Included
6/9/92	1:00	S	East Pool deep	5	2	1						1	1		
6/9/92	3:30	S	WEST POOL DEEP	~~8~~ 4	2	1						1	0		only Recovery for (3x) 8 oz
6/9/92	1:30	W	11:25 Field Blank	7	2	3						1	1		
		W	Trip Blank	2	2										

Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
[signature]	6-9-92	983	[signature]		
Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
Relinquished by: (Signature)	Date	time	Received for Laboratory by: (Signature)	Date	time
[signature]	6-9-92	1730	[signature]		

PROJECT CONTACT:

PHONE NUMBER:

Discrepancies Between Sample Labels and COC Record? Y or N
NOTES:

LABORATORY USE ONLY

Samples were:
1)Shipped ___ or Hand Delivered ___ Airbill # ___
2)Ambient or Chilled
3)Recieved In Good Condition Y or N
4)Properly Preserved Y or N
5)Samples returned to lab. ___ hours from Collection

COC Tape was:
1)Present on Outer Package Y or N
2)Unbroken on Outer Package Y or N
3)COC Record Present and Complete Upon Sample Rec't. Y or N

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EZA LABS, INC.

Environmental and Industrial Analytical Laboratory
575 Broad Hollow Road, Melville, N.Y. 11747-5076
(516) 694-3040
FAX: 516-694-4122

EXTERNAL CHAIN OF CUSTODY

PROJ. NO.:

PROJECT NAME: MAGNUSONICS

SAMPLERS: (Signature)/Client

DELIVERABLES: NYS DEC CLP 12/91

Refrigerator #

SAMPLE CONTAINER DESCRIPTION →: 40 ml vial | 40 ml vial / 8 oz. Jar | 1 liter Glass | 1 liter Glass / 8 oz Jar | 1000 ml Plastic | 8 oz Jar | 1000 ml Plastic

NOTES: TCLP/RCRA Analysis

Field or Trip Blank Containers

Soil Sample Containers

* Received check for $2000.00 Retainer
RD 6-9-92

DATE	TIME	MATRIX	FIELD I.D.	TOTAL NO. OF CONTAINERS	VOA	BNA	Pest/PCB	RCRA				Metal	CN	LAB I.D. No.	REMARKS
6/9/92	9:00	S	WEST POOL SHALLOW	9	4	2	→	2				1			MS/MSD Included
6/9/92	11:30	S	EAST POOL SHALLOW	5	2	1	→	1				1			
6/9/92	11:05	S	EAST DRYWELL	5	2	1	→	1				1			
6/9/92	1:45	W	Field Blank	10	2	3	3	1				1			
			Trip Blank	2	2										

Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
[signature]	6-9-92	0830	[signature]		
Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
Relinquished by: (Signature)	Date	time	Received for Laboratory by: (Signature)	Date	time
[signature]	6-9-92	1730	[signature]		

PROJECT CONTACT:

PHONE NUMBER:

Discrepancies Between Sample Labels and COC Record? Y or N
NOTES:

LABORATORY USE ONLY

Samples were:
1)Shipped ___ or Hand Delivered ___ Airbill # ______
2)Ambient or Chilled
3)Recieved in Good Condition Y or N
4)Properly Preserved Y or N
5)Samples returned to lab. ___ hours from Collection

COC Tape was:
1)Present on Outer Package Y or N
2)Unbroken on Outer Package Y or N
3)COC Record Present and Complete Upon Sample Rec't. Y or N

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CLIENT COPY

Analytical Data Package For

GALLI ENGINEERING
PROJECT: MAGNUSONICS

SOIL AND TCLP SAMPLES
RECEIVED: JUNE 9, 1992

SAMPLE DATA SUMMARY PACKAGE

JUNE 1992

H2M LABS, INC.
Environmental Testing Laboratories
575 Broad Hollow Road, Melville, N.Y. 11747

H2M LABS, INC.

SAMPLE DATA SUMMARY PACKAGE

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GALLI ENGINEERING
MAGNUSONICS PROJECT
SAMPLES RECEIVED: 06/09/92
GLE001

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H2M LABS, INC.

1. NYS DEC SUMMARY PAGES

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S 0002

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY
SAMPLES RECEIVED 06/09/92
GALLI ENGINEERING
MAGNUSONICS
GLE001

Customer Sample Code	Laboratory Sample Code	Analytical Requirements *					
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER
BACKGROUND MS/MSD	9218718					X	X
E. POOL DEEP MS/MSD	9218719	X	X			X	X
W. POOL DEEP	9218720	X	X			X	X
FIELD BLANK	9218721	X	X			X	

Customer Sample Code	Laboratory Sample Code	TCLP ANALYSIS Analytical Requirements *					
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER
W.POOL SHAL. MS/MSD	9218715	X	X		X	X	X
E. POOL SHALLOW	9218716	X	X		X	X	X
EAST DRYWELL	9218717	X	X		X	X	X

* Check Appropriate Boxes
* CLP, Non-CLP (Please indicate year of protocol) 12/91, RECRA
* TCL, HSL, Priority Pollutant, TCLP

SP

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A ANALYSES
SAMPLES RECEIVED: 06/09/92
GALLI ENGINEERING
MAGNUSONICS PROJECT
GLE001

SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	DATE EXTRACTED	DATE ANALYZED
W. POOL SHALLOW	WATER	06/09/92	06/09/92	06/16/92	06/22/92
W. POOL SHALLOW MS	"	"	"	"	"
W. POOL SHALLOW MSD	"	"	"	"	"
E. POOL SHALLOW	"	"	"	"	"
E. DRYWELL	"	"	"	"	"
E. POOL DEEP	SOIL	"	"	06/14/92	06/20/92
E. POOL DEEP MS	"	"	"	06/14/92	06/18/92
E. POOL DEEP MSD	"	"	"	06/14/92	06/18/92
W. POOL DEEP	"	"	"	"	06/18/92
FIELD BLANK	WATER	"	"	06/13/92	06/16/92

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS FORM

BNA ORGANIC ANALYSES
GALLI ENGINEERING
MAGNUSONICS PROJECT
SAMPLES RECEIVED 06/09/92

SAMPLE ID	MATRIX	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
W. POOL SHALLOW	WATER	SEPF	NONE	1.0
W. POOL SHALL. MS	WATER	SEPF	NONE	1.0
W. POOL SHALL. MSD	WATER	SEPF	NONE	1.0
E. POOL SHALLOW	WATER	SEPF	NONE	1.0
EAST DRYWELL	"	"	"	"
E. POOL DEEP	SOIL	SONC	GPC	"
E. POOL DEEP MS	SOIL	SONC	GPC	"
E. POOL DEEP MSD	SOIL	SONC	GPC	"
W. POOL DEEP	SOIL	SONC	GPC	"
FIELD BLANK	WATER	SEPF	NONE	"

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS FORM

TCLP PESTICIDES AND HERBICIDES
ORGANIC ANALYSES
GALLI ENGINEERING
MAGNUSONICS PROJECT
SAMPLES RECEIVED 06/09/92

SAMPLE ID	MATRIX	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
W. POOL SHALLOW	WATER	SEPF	NONE	1.0
W. POOL SHALL. MS	WATER	SEPF	NONE	1.0
W. POOL SHALL. MSD	WATER	SEPF	NONE	1.0
E. POOL SHALLOW	WATER	SEPF	NONE	1.0
EAST DRYWELL	"	"	"	"

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA ANALYSES
SAMPLES RECEIVED 06/09/92
GALLI ENGINEERING
MANGUSONICS PROJECT
GLE001

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	LOW LEVEL MED.LEVEL	DATE ANALYZED
W. POOL SHALLOW	WATER	06/09/92	06/09/92	LOW	06/17/92
W. POOL SHALLOW MS	WATER	06/09/92	06/09/92	LOW	06/17/92
W. POOL SHALLOW MSD	WATER	06/09/92	06/09/92	LOW	06/17/92
E. POOL SHALLOW	"	"	"	"	"
E. POOL SHALLOW DL	"	"	"	"	06/18/92
E. DRYWELL	"	"	"	"	06/18/92
E. POOL DEEP	SOIL	"	"	"	06/16/92
E. POOL DEEP MS	SOIL	"	"	"	06/15/92
E. POOL DEEP MSD	SOIL	"	"	"	06/15/92
W. POOL DEEP	SOIL	"	"	"	06/15/92
FIELD BLANK	WATER	"	"	"	06/16/92

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TCLP PESTICIDE/PCB
ANALYSES
DATES RECEIVED: 06/09/92
GALLI ENGINEERING
MAGNUSONICS PROJECT
GLE001

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	DATE EXTRACTED	DATE ANALYZED
W. POOL SHALLOW MS/MSD	WATER	06/09/92	06/09/92	06/15/92	06/21/92
E. POOL SHALLOW	"	"	"	"	"
E. DRYWELL	"	"	"	"	"

All TCLP extractions took place on 6/14/92

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TCLP HERBICIDES
ANALYSES
DATES RECEIVED: 06/09/92
GALLI ENGINEERING
MAGNUSONICS PROJECT
GLE001

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	DATE EXTRACTED	DATE ANALYZED
W. POOL SHALLOW MS/MSD	WATER	06/09/92	06/09/92	06/15/92	06/19/92
E. POOL SHALLOW	"	"	"	"	"
E. DRYWELL	"	"	"	"	"
				"	"

All TCLP extractions took place on 6/14/92

H2M LABS, INC.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES
SAMPLES RECEIVED 06/09/92
GALLI ENGINEERING
MAGNUSONCIS PROJECT
(GLE001)

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE * ANALYZED
W.POOL SHAL.MS/MSD	WATER	TCLP METALS	06/09/92	6/92,7/92
E. POOL SHALLOW	"	"	"	"
E. DRYWELL	"	"	"	"
BACKGROUND MS/MSD	SOIL	TCL METALS	"	"
E. POOL DEEP	"	"	"	"
W. POOL DEEP	"	"	"	"
FIELD BLANK	WATER	"	"	"

* SEE INDIVIDUAL RUN SHEETS FOR EXACT DATES.

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H2M LABS, INC.

2. CHAIN OF CUSTODY DOCUMENTATION

H2M LABS, INC.
Environmental and Industrial Analytical Laboratory
575 Broad Hollow Road, Melville, N.Y. 11747-5076
(516) 694-3040
FAX: 516-694-4122

EXTERNAL CHAIN OF CUSTODY

Pg 1 of 2

PROJ. NO.:

PROJECT NAME: MAGNUSONICS

SAMPLERS: (Signature)/Client

DELIVERABLES: NYS DEC CLP 12/91

Refrigerator #

SAMPLE CONTAINER DESCRIPTION →: 40 ml. vial | 1 liter Glass | 1 liter Glass | 1000 ml. Plastic | | | | 1000 ml. Plastic

40 ml. vial | 8 oz Jar → | 8 oz Jar | | | | 8 oz Jar

NOTES: TCLP/RCRA Analysis

Field or Trip Blank Containers

Soil Sample Containers

* Received check for 1000ml Retainer RD 6-9-92

DATE	TIME	MATRIX	FIELD I.D.	TOTAL NO. OF CONTAINERS	VOA	BNA	Pest/PCB	RCRA				Metal	CN	LAB I.D. No.	REMARKS
6/9/92	2:00 pm	S	WEST POOL SHALLOW	9	4	2	→	2				1		9218715	MS/MSD Included
6/9/92	11:50	S	EAST POOL SHALLOW	5	2	1	→	1				1		9218716	
6/9/92	11:05	S	EAST DRYWELL	5	2	1	→	1				1		9218717	
~~6/9/92~~	~~1:45~~	~~W~~	~~Field Blank~~	~~10~~	~~2~~	~~3~~	~~3~~	~~1~~				~~1~~		~~9218721~~	cancel analysis RD 6-9
			RD 6-9 ~~Trip Blank~~	~~2~~	~~2~~										

Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
Rick [signature]	6-9-92	0830	[signature]		
Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
Relinquished by: (Signature)	Date	time	Received for Laboratory by: (Signature)	Date	time
[signature]	6-9-92	1730	Rick [signature]		

PROJECT CONTACT:

PHONE NUMBER:

Discrepancies Between Sample Labels and COC Record? Y or (N)
NOTES:

LABORATORY USE ONLY

Samples were:
1) Shipped ___ or Hand Delivered ✓
Airbill # ______
2) Ambient or (Chilled)
3) Recieved in Good Condition (Y) or N
4) Properly Preserved (Y) or N
5) Samples returned to lab. ___ hours from Collection

COC Tape was:
1) Present on Outer Package Y or (N)
2) Unbroken on Outer Package Y or N
3) COC Record Present and Complete Upon Sample Rec't. (Y) or N

ORIGINAL COPY

S 0012 67

Pg 2 of 2

H2M LABS, INC.
Environmental and Industrial Analytical Laboratory
575 Broad Hollow Road, Melville, N.Y. 11747-507,
(516) 694-3040
FAX: 516-694-4122

EXTERNAL CHAIN OF CUSTODY

PROJ. NO.	PROJECT NAME

SAMPLERS: (Signature)/Client

DELIVERABLES:

Refrigerator #

NOTES: TCL Analysis

SAMPLE CONTAINER DESCRIPTION →	VOA	BNA	Pest/PCB					Metal	CN	NOTES
Field + Trip Blank Containers	40 ml vial	1 liter Glass						1000 ml plastic w/ HNO_3	1000 ml plastic w/ NaOH	Field + Trip Blank Containers
Soil Sample Containers	40 ml vial	8 oz Jar	[redacted]					8 oz Jar	8 oz Jar	Soil Sample Containers

ANALYSIS REQUESTED — ORGANIC: VOA, BNA, Pest/PCB; INORG.: Metal, CN

For TCL metals only

DATE	TIME	MATRIX	FIELD I.D.	TOTAL NO. OF CONTAINERS	VOA	BNA	Pest/PCB					Metal	CN	LAB I.D. No.	REMARKS (RD 6-11)
6/9/92	4:15	S	BACKGROUND	7	3	2						1	1	9218718	MS/MSD ~~Included~~
6/9/92	1:00	S	East Pool deep	5	2	1						1	1	9218719	MS/MSD for VOA + Semi-vol.
6/9/92	3:30	S	WEST POOL DEEP	~~8~~ 4	2	1						1	0	9218720	AVG Recovery for (2x) 8 oz J
6/9/92	1:30	W	Field Blank	7	2	3						1	1	9218721/9218725	RD 6-11
		~~W~~	~~Trip Blank~~	~~2~~	~~2~~									~~9218722~~	cancel analysis RD 6-11

Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
[signature]	6-9-92	0830	[signature]		
Relinquished by: (Signature)	Date	time	Received by: (Signature)	Date	time
Relinquished by: (Signature)	Date	time	Received for Laboratory by: (Signature)	Date	time
[signature]	6-9-92	1730	[signature]		

PROJECT CONTACT:

PHONE NUMBER:

Discrepancies Between Sample Labels and COC Record? Y or N
NOTES:

LABORATORY USE ONLY

Samples were:
1) Shipped ___ or Hand Delivered ✓
Airbill # ___
2) Ambient or Chilled
3) Recieved in Good Condition Y or N
4) Properly Preserved Y or N
5) Samples returned to lab. ___ hours from Collection

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) COC Record Present and Complete Upon Sample Rec't. Y or N

ORIGINAL COPY

S 0013 68

H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 1174
(516) 694-3040 FAX: (516) 694-4122

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: GLE

SDG #: 001

NYSDEC CLP 12/91

Samples Collected 6-9-92

2 week verbals

30 Day Package

INTERNAL CHAIN OF CUSTODY

SAMPLES RECEIVED BY Richard Diaz DATE 6-9-92 TIME 1730

SIGNATURE Richard Diaz

CLIENT I.D.	H2M LAB #	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
W-Pool Shallow MS/MSD Also	9218715	*		TCLP VOC's via Ext.
E. Pool Shallow	9218716	↓		↓
East Drywell	9218717	↓		↓
~~Background~~	~~9218718~~	~~D~~	~~3~~	~~TCL VOC's~~ RD 6-12
E. Pool Deep MS/MSD Also	9218719	D	2	TCL VOC's
W. Pool Deep	9218720	↓	1	↓
Field Blank	9218721	↓	2	↓
* Sample Containers in Custody of C-O-C #18				

H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 1
(516) 694-3040 FAX: (516) 694-4122

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: GLE

SDG #: 001

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	SAMPLE I.D. NO. AND BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
0900	6/12/92	Sign Rich Sig	Sign [illegible]	All D	Analysis	
		Sign	Sign			
		Sign	Sign			
		Sign	Sign			
		Sign	Sign			
		Sign	Sign			
		Sign	Sign			
		Sign	Sign			
		Sign	Sign			
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		Sign	Sign			
		Sign	Sign			
		Sign	Sign			
		Sign	Sign			

H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: C-LE

SDG #: CC1

NYSDEC CLP 12/91
Samples Collected 6-9-92

2 week verbals
30 Day Package

INTERNAL CHAIN OF CUSTODY

SAMPLES RECEIVED BY Richard Diaz DATE 6-9-92 TIME 1730

SIGNATURE Richard Diaz

CLIENT I.D.	H2M LAB #	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
W. Pool Shallow MS/MSD Also	9218715	H, D	7	TCLP Ext. for VOC, Semi-vol, Pest, Herb metals; F.P. Reac. PHCORR
E. Pool Shallow	9218716	H, D	4	↓
E. Drywell	9218717	H D	4	↓
~~[illegible]~~ RD	~~9218718~~	~~H~~	~~2~~	~~TCL BN-AE~~ Sample cancelled by [illegible] JGS 6/12
E. Pool Deep MS/MSD Also	9218719	H	1	TCL BN-AE
W. Pool ~~Shallow~~ DEEP JGS 9/17/92	9218720	H	1	↓
Field Blank	9218721	C	3	TCL BN-AE

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H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: ILE

SDG #: CC1

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	SAMPLE I.D. NO. AND BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
6/11/92	17:30	Sign [illegible]	Sign [illegible]	All H.D.C	Sample Prep	
6/12/92	2100	Sign [illegible]	Sign [illegible]	9218719 9218720 H	extraction + conc.	
6/12/92	2130	Sign [illegible]	Sign Fridge #12	9218719 9218720 H	storage	
6/13/92	0100	Sign [illegible]	Sign Fridge #11	9218719, MS, MSD (E) 9218720 BNA	storage	
6-13-92	13:45	Sign [illegible]	Sign McConna	All C	extraction	
6-13-92	14:05	Sign McConna	Sign Refridge #12	All C empties	storage	
6-13-92	21:30	Sign McConna	Sign Refridge #13	All XBNA (E)	storage	
6/13/92	2130	Sign [illegible]	Sign [illegible]	9218715, 716 9218717 H	SV, P, H, M TCLP Prep	
6/14/92	0130	Sign [illegible]	Sign Fridge #12	9218715, 716 9218717 H	Storage	
6/14/92	0130	Sign [illegible]	Sign Tumbler	9218715 MS, MSD TCLP 9218716 717 SV, P, H, M	tumble	
6-14-92	18:30	Sign Tumbler	Sign [illegible]	All TCLP Extracts	Transfer to fridge	
6-15-92	08:15	Sign [illegible]	Sign William [illegible]	All TCLP metals	Analysis	
6-15-92	09:00	Sign [illegible]	Sign [illegible]	Aliquots for XHB (E)	XHB extraction	
6-15-92	13:50	Sign [illegible]	Sign [illegible]	Reactivity scrubbing solution	CN + Sulfide Analysis	
6-15-92	18:25	Sign Refridge #13	Sign M. Stefanelli	All XBNA (E)	GPC	
6-15-92	23:20	Sign M. Stefanelli	Sign Refridge #13	ALL BNA (E) STORAGE	STORAGE	
6-15-92	23:25	Sign [illegible]	Sign MS + MSD M. Stefanelli	Aliquots for XPS TCLP	Extraction	
6-16-92	01:00	Sign M. Stefanelli	Sign Refr #11	XP TCLP All (E)	Storage	
6-16-92	09:03	Sign Refr #11	Sign [illegible]	All XP TCLP (E)	Transfer	
6-16-92	09:07	Sign [illegible]	Sign [illegible]	All XP TCLP (E)	Analysis	
~~[illegible]~~	~~[illegible]~~	Sign [illegible]	Sign	~~9218715 — 9218717 H TCLP~~	~~TCLP prep~~	
~~[illegible]~~	~~[illegible]~~	Sign	Sign ~~Fridge #12~~	~~9218715 → 8717 H~~	~~storage~~	

incorrect entry ignored

H2M LABS, INC.

575 Broad Hollow Road, M
(516) 694-3040 FAX: (516)

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: GLE

SDG #: 001

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	SAMPLE I.D. NO. AND BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY
6-16-92	17:50	Sign [illegible]	Sign Michael V Connor	XBA TCLP E	EXTRACTION
6-16-92	~~00~~:20	Sign M O'Connor	Sign REFRIDGE #11	XBNA E	STORAGE
6-17-92	16:20	Sign [illegible]	Sign [illegible]	ZUTCLP E	ANALYSIS
6/18/92	14:00	Sign [illegible]	Sign [illegible]	Reactivity Scrubbing Solution	S Analysis
6-18-92	15:10	Sign [illegible]	Sign [illegible]	XHTCLP E	Analysis
6/25/92	16:00	Sign [illegible]	Sign Consuelo Kaiser	Reactivity Scrubbing Solution	CN Analysis
~~6/25/92~~	~~17:30~~	Sign SB 6/25	Sign		
6-30-92	12:20	Sign [illegible]	Sign Consuelo Kaiser	Reactivity scrubbing solution vial 1	CN Analysis
6-30-92	12:25	Sign [illegible]	Sign [illegible]	Reactivity scrubbing solution vial 2	Sulfide Analysis
		Sign	Sign		
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H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 117
(516) 694-3040 FAX: (516) 694-4122

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: GLE

SDG #: 001 NYSDEC CLP 12/91

2 week verbals

Samples collected 6-9-92

30 Day Package

INTERNAL CHAIN OF CUSTODY

SAMPLES RECEIVED BY Richard DIAZ DATE 6-9-92 TIME 1730

SIGNATURE Richard Diaz

CLIENT I.D.	H2M LAB #	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
~~We~~ W-Pool Shallow MS/MSD	9218715	*		TCLP metals via Ext.
E-Pool Shallow	9218716	↓		↓
East Dry-well	9218717	↓		↓
Backround MS/MSD Also	9218718	H	1	TCL Metals, Dig
E-Pool Deep	9218719	H	1	↓
W-Pool Deep	9218720	D	1	↓
Field Blank	9218721	Ep	1	↓
* Sample containers in Custody of C-O-C #18				

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ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: GLE

SDG #: 001

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	SAMPLE I.D. NO. AND BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
6/14/92	1740	Sign [illegible]	Sign [illegible]	All H, D, Ep	Analysis	
6/15/92	1330	Sign [illegible]	Sign Mona [illegible]	All H, D	Digestion	
6/15/92	1430	Sign [illegible]	Sign [illegible]	All Ep	digestion	
6/15/92	1435	Sign [illegible]	Sign [illegible]	TCLP Ex. 715, 716, 717	storage	
6/16/92	1320	Sign Mona Aragi	Sign [illegible]	soils + soil digs	Analysis	
6/16/92	[illegible]	Sign [illegible]	Sign [illegible]	All Ep, Fl/dig	analysis	
6/16/92	15.7	Sign [illegible]	Sign Mona Aragi	TCLP EX	Digestion	
6/16/92	1745	Sign Mona Aragi	Sign [illegible]	TCLP EX	Analysis	
6/16/92	1750	Sign [illegible]	Sign [illegible]	TCLP Ex, soils, H, D, Ep, FB	Hg	
6/16/92	19:45	Sign [illegible]	Sign Cabinet, Refrig.	TCLP extr., H, D, Ep	Storage	
6/17/92	14.30	Sign Mona Aragi	Sign [illegible]	TCLP Digests Ext Ag	Analysis	
6/17/92	15:00	Sign [illegible]	Sign [illegible]	All BOD's	Hg analysis	
6/25/92	9:00	Sign [illegible]	Sign William [illegible]	All Fu digs	Se, Pb	
6/25/92	11:44	Sign William [illegible]	Sign [illegible]	All Fu digs	storage	
6/25/92	1145	Sign [illegible]	Sign [illegible]	All Fl digs	ICP	
6/25/92	1500	Sign [illegible]	Sign [illegible]	All Fl digs	storage	
6/25/92	1505	Sign [illegible]	Sign Mona Aragi	TCLP Extracts	Redig	
6/25/92	21.30	Sign Mona Aragi	Sign dig. Cab.	TCLP Ext. dig	storage	
6/26/92	7:00	Sign [illegible]	Sign William [illegible]	All Fu digs	Tl Se	
6/26/92	1040	Sign Dig cab.	Sign [illegible]	TCLP Ex Fl dig	ICP	
6/26/92	13:15	Sign William [illegible]	Sign [illegible]	All Fu digs	storage	
6/26/92	1440	Sign [illegible]	Sign [illegible]	All TCLP digs	storage	

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ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: ____________

SDG #: ____________

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	SAMPLE I.D. NO. AND BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
6/29/92	705	Sign [illegible]	Sign [illegible]	All Fl digs All Fl digs	CV Cd	
6/30/92	1300	Sign [illegible]	Sign [illegible]	All TCIP Fl digs	ICP	
6/30/92	1720	Sign [illegible]	Sign [illegible]	TCIP Fl digs	Storage	
7/1/92	1235	Sign [illegible]	Sign [illegible]	All Fl digs, TCIP Ag Dig	Ag Flame	
7/1/92	1405	Sign [illegible]	Sign [illegible]	All Fl digs, Ag TCIP Digs	Storage	
		Sign	Sign			
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ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: GLE

SDG #: 001 NYS DEC CLP 12/91

Samples Collected 6-9-92

2 week verbals
30 day package

INTERNAL CHAIN OF CUSTODY

SAMPLES RECEIVED BY Richard Diaz DATE 6-9-92 TIME 1730

SIGNATURE Richard Diaz

CLIENT I.D.	H2M LAB #	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
W. Pool Shallow MS/MSD Also	9218715	H	1	TS
E. Pool Shallow	9218716	↓	↓	↓
East Drywell	9218717	↓	↓	↓
Backround MS/MSD ~~Also~~ Also RD 6-11	9218718	H	1	CN, TS
E. Pool Deep	9218719	H	↓	↓
RD 6-11 ~~West~~ W. Pool Deep	9218720	RD 6-11 H	↓	↓
Field Blank	9218721	Ecn	1	CN

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(516) 694-3040 FAX: (516) 694-4122

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CLIENT: CLE

SDG #: 001

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	SAMPLE I.D. NO. AND BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
6/11/92	17:35	Sign [illegible signature]	Sign [illegible signature]	All H, Ecn	Analysis	
6/12/92	8:30	Sign [illegible signature]	Sign Consuelo Kaiser	9218718-21	CN	
6/12/92	13:45	Sign Consuelo Kaiser	Sign [illegible signature]	9218718-21	storage	
6/15/92	10:15	Sign for HS [illegible signature]	Sign [illegible signature]	All H	TS	[illegible]
6/15/92	15:30	Sign [illegible signature]	Sign [illegible signature]	All H	storage	
		Sign	Sign			
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3. CASE NARRATIVE

H2M LABS, INC.

Case Narrative
For Volatile Analysis
SDG: GLE001
Samples Received: 6/9/92

For Samples:

W. Pool Shallow MS/MSD
E. Pool Shallow
East Drywell
E. Pool Deep MS/MSD
W. Pool Deep
Field Blank

3 samples and an MS/MSD were analyzed by ZHE for the TCLP volatile organics. 2 soil samples, an MS/MSD and field blank were analyzed for the volatile organic TCL analytes.

Sample E Pool Shallow (TCLP) had low surrogate recoveries for toluene-d8 and d4-1,2-dichloroethane. The sample was reanalyzed at a dilution due to levels of benzene that exceeded the calibration range. The diluted sample had high recoveries for the surrogate d4-1,2-dichloroethane. East drywell (TCLP) had high recoveries for d4-1,2-dichloroethane as did the spike of the sample. Both sets of data are submitted.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: June 29, 1992

****
JMSlavin
****
Joann M. Slavin
Quality Assurance Manager

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H2M LABS, INC.

Case Narrative
For Semi-Volatile Analysis
SDG: GLE001
Samples Received: 6/9/92

For Samples:

W. Pool Shallow MS/MSD
E. Pool Shallow
East Drywell
E. Pool Deep MS/MSD
W. Pool Deep
Field Blank

2 soil samples, an MS/MSD and a field blank were analyzed for the TCL compounds. 3 water samples and an MS/MSD were analyzed as TCLP samples.

Pyridine was not reported since it was not present in the standard calibration solution. However, it was not detected, as it would have identified as a TIC.

The soil MSD for sample E. Pool Deep had a low percent recovery causing a high RPD.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: June 29, 1992

Joann M. Slavin
Quality Assurance Manager

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S 0026

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(516) 694-3040 FAX: (516) 694-4122
ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

CASE NARRATIVE FOR TCLP PESTICIDES
DATE RECEIVED: 06/09/92
GLE001

FOR SAMPLES: W. POOL SHALLOW MS/MSD
E. POOL SHALLOW
EAST DRY WELL
FIELD BLANK

QC DATA

Matrix spike blank and matrix spike blank duplicate were mistakenly not spiked with the surrogate standard solution. Surrogate standard decachlorobiphenyl recovery in the method blank was below the advisory QC limit. Good recoveries were obtained for all spiked components in the matrix spike sample and the matrix spike blanks.

One blank was extracted and analyzed with this group of samples. No targeted analytes were observed in the blank.

PERFORMANCE CRITERIA/CALIBRATION

All QC requirements for initial calibration were met for both analytical columns.

SAMPLE ANALYSIS

All samples were extracted and analyzed within holding times.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: 7/07/92

Stephen Stefanou
GC Supervisor

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H2M LABS, INC.

Case Narrative
For TCLP Herbicides
SDG: GLE001
Samples Received: 6/9/92

For Samples: W. Pool Shallow MS/MSD
E. Pool Shallow
East Drywell

QC DATA

Surrogate standard recovery for all extracts was within QC limits. Matrix spike sample and matrix spike blank recoveries were within QC limits.

One blank was extracted and analyzed with this group of samples. No targeted analytes were observed in the blank.

PERFORMANCE CRITERIA/CALIBRATION

An initial calibration of 6 points was performed with an RSD of less than 10%. A continuous calibration check was analyzed and %D was less than 10%.

SAMPLE ANALYSIS

All samples were extracted and analyzed within holding times. No targeted analytes were observed in any of the samples.

> I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: July 1, 1992

Stephen Stefanou
GC Supervisor

H2M LABS, INC.

Case Narrative for Metals
Samples Received: 06/09/92
GLE001

For Samples: BACKRO MS/MSD (BACKGROUND)   FIELD BLANK
POOLDE (EAST POOL DEEP)
POOLDW (WEST POOL DEEP)

ICP analysis was performed using an ARL 3560. Furnace analysis was performed on a Varian Spectra 30/GTA-96 and a Varian Spectra 400. A Perkin Elmer 2380 was used for flame AA analysis. Mercury was analyzed on a Varian Spectra 400 Flame AA using cold vapor techniques.

The barium, beryllium, cadmium, chromium, cobalt, copper, nickel, selenium, thallium, vanadium, and zinc matrix spike recoveries for sample BACKRO (9218718) were not within 75-125%. All associated results are reported flagged with an "N".

The aluminum, chromium, and lead duplicate results for sample BACKRO were outside the required control limits. All aluminum, chromium, and lead results are reported flagged with an "*".

The zinc serial dilution result for sample BACKRO was greater than the required control limit (10% difference). All zinc results are flagged with an "E".

The zinc result for field blank sample 9218721 was greater than the CRDL.

A cyanide water prep blank was not analyzed. The cyanide result for field blank sample 9218721 was less than the IDL.

The ICP correlation coefficient for silver was less than 0.995. Silver was reanalyzed on the flame.

The ICP cadmium continuing calibration blank (CCB1) result was greater than the CRDL. Cadmium was reanalyzed on the flame.

All silver and cadmium quality control requirements were met.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of this data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: July 8, 1992

Stanley Isaacson
Laboratory Manager

H2M LABS, INC.

Case Narrative
For TCLP Metals Data
Samples Received: 6/9/92
GLE001

For Samples: DRYWEL POOLSWD POOLSE POOLSWS POOLSW

ICP analysis was performed using an ARL 3560. Mercury was analyzed on a Varian Spectra 400 Flame AA using cold vapor techniques. Flame analysis was performed on a Perkin-Elmer 2380.

The silver matrix spike recoveries for sample POOLSW was not within 75-125%. All silver results are reported flagged with an "N".

As per method, all positive TCLP results have been adjusted for the matrix spike recoveries.

All duplicate results met quality control requirements.

The ICP serial dilution was inadvertently performed on matrix spike sample POOLSWS. All results for sample POOLSW were less than 50 times the IDL.

The reactivity sulfide matrix spike recovery is not within 75-125%. However, the sample result is greater than 4x the spike added. The spike was performed twice and in both cases the spike result is less than the sample result. One possible explanation is that upon homogenizing the sample H2S gas may have escaped from the sample. The reactivity sulfide/cyanide duplicate was not processed along with the sample. However, analytical precision has been verified via the MS/MSD.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: July 8, 1992

Stanley Isaacson
Laboratory Manager

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4. **SAMPLE REPORTS**
   4.1 TCL AND TCLP VOLATILES
   4.2 TCL AND TCLP SEMI-VOLATILES
   4.3 TCLP PESTICIDES/PCBS
   4.4 TCLP HERBICIDES
   4.5 TCL AND TCLP METALS
   4.6 REACTIVITY, CORROSIVITY, FLASHPOINT

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QUALIFIERS FOR METALS ANALYSIS

ANALYSIS QUALIFIERS

E - The reported value is estimated because of the presence of interference. An explanatory note is included in the case narrative.

M - Duplicate injection precision not met.

N - Matrix spiked sample recovery is not within the control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

+ - Correlation coefficient for the MSA is less than 0.995.

W - Post digestion spike for Furnace AA analysis is out of control limits (85-115 %), while sample absorbance is less than 50 % of spike absorbance.

* - Duplicate analysis not within control limits.

CONCENTRATION QUALIFIERS

B - Entered if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

U - Entered if the analyte was analyzed for but not detected, less than the IDL.

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QUALIFIERS FOR REPORTING ORGANICS DATA

Value - If the result is a value greater than or equal to the quantification limit, report the value.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to

$$\frac{(330\ U)}{D} \times df \quad \text{where } D = \frac{100-\%\ \text{moisture}}{100}$$

and df = dilution factor

For example, at 24% moisture, $D = \frac{100-24}{100} = 0.76$

$\frac{(330\ U)}{.76} \times 10 = 4300\ U$ rounded to the appropriate number of significant figures

For semivolatile soil samples, the extract must be concentrated to 0.5 mL, and the sensitivity of the analysis is not compromised by the cleanup procedures. Similarly, pesticide samples subjected to GPC are concentrated to 5.0 mL. Therefore, the CRQL values in Exhibit C will apply to all samples, regardless of cleanup. However, if a sample extract cannot be concentrated to the protocol-specified volume (see Exhibit C), this fact must be accounted for in reporting the sample quantitation limit.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified quantification limit but greater than zero. (e.g.: If limit of quantification is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.) The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a Laboratory-defined flag, discussed below.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed according to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of the peak representing the single isomer exceeds 200 ug/l or the peak representing the two coeluting isomers on that GC column exceeds 400 ug/l. Similarly, if the two 1,2-Dichloroethene isomers coelute, a diluted analysis is not required unless the concentration exceeds 400 ug/l.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags as needed. For instance, the "X" flag might combine "A", "B", and "D" flags for some samples. The Laboratory defined flags limited to the letters "X", "Y" and "Z".

The combination of flags "BU" or "UB" is expressly prohibited. Blank contaminants are flagged "B" only when they are detected in the sample.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E-POOL DEEP

Lab Name:H2M   Contract:NYSDEC

Lab Code:H2M   Case No.:.   SAS No.:.   SDG No.:GLE001

Matrix: (soil/water) SOIL   Lab Sample ID: 9218719

Sample wt/vol: 4.5 (g/mL) G   Lab File ID: >P9273

Level: (low/med) LOW   Date Received:6/09/92

% Moisture: not dec. 35   Date Analyzed: 6/16/92

GC Column: RTX-5 ID 0.53 (mm)   Dilution Factor: 1

Soil Extract Volume:__________(ul)   Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	17.	U
74-83-9	Bromomethane	17.	U
75-01-4	Vinyl Chloride	17.	U
75-00-3	Chloroethane	17.	U
75-09-2	Methylene_Chloride	17.	U
67-64-1	Acetone	17.	U
75-15-0	Carbon Disulfide	17.	U
75-35-4	1,1-Dichloroethene	17.	U
75-34-3	1,1-Dichloroethane	17.	U
540-59-0	1,2-Dichloroethene_(total)	17.	U
67-66-3	Chloroform	17.	U
107-06-2	1,2-Dichloroethane	17.	U
78-93-3	2-Butanone	17.	U
71-55-6	1,1,1-Trichloroethane	17.	U
56-23-5	Carbon Tetrachloride	17.	U
75-27-4	Bromodichloromethane	17.	U
78-87-5	1,2-Dichloropropane	17.	U
10061-01-5	cis-1,3-Dichloropropene	17.	U
79-01-6	Trichloroethene	17.	U
124-48-1	Dibromochloromethane	17.	U
79-00-5	1,1,2-Trichloroethane	17.	U
71-43-2	Benzene	17.	U
10061-02-6	trans-1,3-Dichloropropene	17.	U
75-25-2	Bromoform	17.	U
108-10-1	4-Methyl-2-pentanone	17.	U
591-78-6	2-Hexanone	17.	U
127-18-4	Tetrachloroethene	17.	U
79-34-5	1,1,2,2-Tetrachloroethane	17.	U
108-88-3	Toluene	17.	U
108-90-7	Chlorobenzene	17.	U
100-41-4	Ethylbenzene	17.	U
100-42-5	Styrene	17.	U
133-02-7	Xylene (total)	17.	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E-POOL DEEP

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) SOIL Lab Sample ID: 9218719

Sample wt/vol: 4.5 (g/mL) G Lab File ID: >P9273

Level: (low/med) LOW Date Received: 6/9/92

% Moisture: not dec. 35.0 Date Analyzed: 6/16/92

GC Column: RTX-5 ID: 0.53 (mm) Dilution Factor: 1.00000

Soil Extract Volume:_______(ul) Soil Aliquot Volume:________(UL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	None Found			
2.				
3.				
4.				
5.				
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H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E. POOL DEEP

Lab Name: H2M LABS INC.   Contract: NYSDEC

Lab Code: H2M   Case No.: GLE   SAS No.: -----   SDG No.: 001

Matrix: (soil/water) SOIL   Lab Sample ID: 9218719

Sample wt/vol: 30 (g/mL) G   Lab File ID: >E6557

Level: (low/med) LOW   Date Received: 6/09/92

% Moisture: 35   decanted: (Y/N) N   Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL)   Date Analyzed: 6/20/92

Injection Volume: 2 (uL)   Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y   pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	510.	U
111-44-4	bis(2-Chloroethyl)Ether	510.	U
95-57-8	2-Chlorophenol	510.	U
541-73-1	1,3-Dichlorobenzene	510.	U
106-46-7	1,4-Dichlorobenzene	510.	U
95-50-1	1,2-Dichlorobenzene	510.	U
95-48-7	2-Methylphenol	510.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	510.	U
106-44-5	4-Methylphenol	510.	U
621-64-7	N-Nitroso-Di-n-propylamine	510.	U
67-72-1	Hexachloroethane	510.	U
98-95-3	Nitrobenzene	510.	U
78-59-1	Isophorone	510.	U
88-75-5	2-Nitrophenol	510.	U
105-67-9	2,4-Dimethylphenol	510.	U
111-91-1	bis(2-Chloroethoxy)methane	510.	U
120-83-2	2,4-Dichlorophenol	510.	U
120-82-1	1,2,4-Trichlorobenzene	510.	U
91-20-3	Naphthalene	510.	U
106-47-8	4-Chloroaniline	510.	U
87-68-3	Hexachlorobutadiene	510.	U
59-50-7	4-Chloro-3-methylphenol	510.	U
91-57-6	2-Methylnaphthalene	510.	U
77-47-4	Hexachlorocyclopentadiene	510.	U
88-06-2	2,4,6-Trichlorophenol	510.	U
95-95-4	2,4,5-Trichlorophenol	1300.	U
91-58-7	2-Chloronaphthalene	510.	U
88-74-4	2-Nitroaniline	1300.	U
131-11-3	Dimethylphthalate	510.	U
208-96-8	Acenaphthylene	510.	U
606-20-2	2,6-Dinitrotoluene	510.	U
99-09-2	3-Nitroaniline	1300.	U
83-32-9	Acenaphthene	510.	U

92

S-0035

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E. POOL DEEP

Lab Name: H2M LABS INC.   Contract: NYSDEC

Lab Code: H2M   Case No.: GLE   SAS No.: -----   SDG No.: 001

Matrix: (soil/water) SOIL   Lab Sample ID: 9218719

Sample wt/vol: 30 (g/mL) G   Lab File ID: >E6557

Level: (low/med) LOW   Date Received: 6/09/92

% Moisture: 35   decanted: (Y/N) N   Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL)   Date Analyzed: 6/20/92

Injection Volume: 2 (uL)   Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y   pH: --

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1300.	U
100-02-7	4-Nitrophenol	1300.	U
132-64-9	Dibenzofuran	510.	U
121-14-2	2,4-Dinitrotoluene	510.	U
84-66-2	Diethylphthalate	510.	U
7005-72-3	4-Chlorophenyl-phenylether	510.	U
86-73-7	Fluorene	510.	U
100-01-6	4-Nitroaniline	1300.	U
534-52-1	4,6-Dinitro-2-methylphenol	1300.	U
86-30-6	N-Nitrosodiphenylamine (1)	510.	U
101-55-3	4-Bromophenyl-phenylether	510.	U
118-74-1	Hexachlorobenzene	510.	U
87-86-5	Pentachlorophenol	1300.	U
85-01-8	Phenanthrene	510.	U
120-12-7	Anthracene	510.	U
86-74-8	Carbazole	510.	U
84-74-2	Di-n-butylphthalate	510.	U
206-44-0	Fluoranthene	510.	U
129-00-0	Pyrene	510.	U
85-68-7	Butylbenzylphthalate	510.	U
91-94-1	3,3'-Dichlorobenzidine	510.	U
56-55-3	Benzo(a)anthracene	510.	U
218-01-9	Chrysene	510.	U
117-81-7	bis(2-Ethylhexyl)phthalate	510.	U
117-84-0	Di-n-octylphthalate	510.	U
205-99-2	Benzo(b)fluoranthene	510.	U
207-08-9	Benzo(k)fluoranthene	510.	U
50-32-8	Benzo(a)pyrene	510.	U
193-39-5	Indeno(1,2,3-cd)pyrene	510.	U
53-70-3	Dibenz(a,h)anthracene	510.	U
191-24-2	Benzo(g,h,i)perylene	510.	U

(1) - Cannot be separated from Diphenylamine

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S 0036

FORM I SV-2   3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W-POOL DEEP

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) SOIL Lab Sample ID: 9218720

Sample wt/vol: 4.8 (g/mL) G Lab File ID: >P9257

Level: (low/med) LOW Date Received: 6/9/92

% Moisture: not dec.. 5.0 Date Analyzed: 6/15/92

GC Column: RTX-5 ID: 0.53 (mm) Dilution Factor: 1.00000

Soil Extract Volume:_______(ul) Soil Aliquot Volume:________(UL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.35	5	J
2.	UNKNOWN	17.52	5	J
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FORM I-CLP-VOA-TIC

H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E. POOL DEEP

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) SOIL Lab Sample ID: 9218719

Sample wt/vol: 30 (g/mL) G Lab File ID: >E6557

Level: (low/med) LOW Date Received: 6/09/92

% Moisture: 35 decanted: (Y/N) N Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 6/20/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y pH:--

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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H2M LABS, INC.

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(516) 694-3040 FAX: (516) 694-4122

1B
EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

W POOL ~~SHALLOW~~ DEEP

OED 7/7/92

Lab Name: H2M LABS INC.   Contract: NYSDEC

Lab Code: H2M   Case No.: GLE   SAS No.: -----   SDG No.: 001

Matrix: (soil/water) SOIL   Lab Sample ID: 9218720

Sample wt/vol: 30 (g/mL) G   Lab File ID: >E6547

Level: (low/med) LOW   Date Received: 6/09/92

% Moisture: 5   decanted: (Y/N) N   Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL)   Date Analyzed: 6/18/92

Injection Volume: 2 (uL)   Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y   pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	350.	U
111-44-4	bis(2-Chloroethyl)Ether	350.	U
95-57-8	2-Chlorophenol	350.	U
541-73-1	1,3-Dichlorobenzene	350.	U
106-46-7	1,4-Dichlorobenzene	350.	U
95-50-1	1,2-Dichlorobenzene	350.	U
95-48-7	2-Methylphenol	350.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350.	U
106-44-5	4-Methylphenol	350.	U
621-64-7	N-Nitroso-Di-n-propylamine	350.	U
67-72-1	Hexachloroethane	350.	U
98-95-3	Nitrobenzene	350.	U
78-59-1	Isophorone	350.	U
88-75-5	2-Nitrophenol	350.	U
105-67-9	2,4-Dimethylphenol	350.	U
111-91-1	bis(2-Chloroethoxy)methane	350.	U
120-83-2	2,4-Dichlorophenol	350.	U
120-82-1	1,2,4-Trichlorobenzene	350.	U
91-20-3	Naphthalene	350.	U
106-47-8	4-Chloroaniline	350.	U
87-68-3	Hexachlorobutadiene	350.	U
59-50-7	4-Chloro-3-methylphenol	350.	U
91-57-6	2-Methylnaphthalene	350.	U
77-47-4	Hexachlorocyclopentadiene	350.	U
88-06-2	2,4,6-Trichlorophenol	350.	U
95-95-4	2,4,5-Trichlorophenol	870.	U
91-58-7	2-Chloronaphthalene	350.	U
88-74-4	2-Nitroaniline	870.	U
131-11-3	Dimethylphthalate	350.	U
208-96-8	Acenaphthylene	350.	U
606-20-2	2,6-Dinitrotoluene	350.	U
99-09-2	3-Nitroaniline	870.	U
83-32-9	Acenaphthene	350.	U

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H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W POOL ~~SHALLOW~~ DEEP

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Deb 7/7/92

Matrix: (soil/water) SOIL Lab Sample ID: 9218720

Sample wt/vol: 30 (g/mL) G Lab File ID: >E6547

Level: (low/med) LOW Date Received: 6/09/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 6/18/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y pH:--

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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FORM I SV-TIC S 0043 3/90

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W-POOL DEEP

Lab Name: H2M Contract: NYSDEC

Lab Code: H2M Case No.: . SAS No.: . SDG No.: GLE001

Matrix: (soil/water) SOIL Lab Sample ID: 9218720

Sample wt/vol: 4.8 (g/mL) G Lab File ID: >P9257

Level: (low/med) LOW Date Received: 6/09/92

% Moisture: not dec.. 5.0 Date Analyzed: 6/15/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:________(ul) Soil Aliquot Volume:________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	11.	U
74-83-9	Bromomethane	11.	U
75-01-4	Vinyl Chloride	11.	U
75-00-3	Chloroethane	11.	U
75-09-2	Methylene Chloride	11.	U
67-64-1	Acetone	11.	U
75-15-0	Carbon Disulfide	11.	U
75-35-4	1,1-Dichloroethene	11.	U
75-34-3	1,1-Dichloroethane	11.	U
540-59-0	1,2-Dichloroethene (total)	11.	U
67-66-3	Chloroform	11.	U
107-06-2	1,2-Dichloroethane	11.	U
78-93-3	2-Butanone	11.	U
71-55-6	1,1,1-Trichloroethane	11.	U
56-23-5	Carbon Tetrachloride	11.	U
75-27-4	Bromodichloromethane	11.	U
78-87-5	1,2-Dichloropropane	11.	U
10061-01-5	cis-1,3-Dichloropropene	11.	U
79-01-6	Trichloroethene	11.	U
124-48-1	Dibromochloromethane	11.	U
79-00-5	1,1,2-Trichloroethane	11.	U
71-43-2	Benzene	11.	U
10061-02-6	trans-1,3-Dichloropropene	11.	U
75-25-2	Bromoform	11.	U
108-10-1	4-Methyl-2-pentanone	11.	U
591-78-6	2-Hexanone	11.	U
127-18-4	Tetrachloroethene	11.	U
79-34-5	1,1,2,2-Tetrachloroethane	11.	U
108-88-3	Toluene	11.	U
108-90-7	Chlorobenzene	11.	U
100-41-4	Ethylbenzene	11.	U
100-42-5	Styrene	11.	U
133-02-7	Xylene (total)	11.	U

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H2M LABS, INC.

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

POOLDE

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Matrix (soil/water): SOIL Lab Sample ID: 9218719

Level (low/med): LOW Date Received: 06/09/92

% Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1470		*	P
7440-36-0	Antimony	6.6	U		P
7440-38-2	Arsenic	1.3	B		F
7440-39-3	Barium	4.2	B	N	P
7440-41-7	Beryllium	0.15	U	N	P
7440-43-9	Cadmium	1.5	U	N*	A
7440-70-2	Calcium	45.8	B		P
7440-47-3	Chromium	13.4		N*	P
7440-48-4	Cobalt	1.7	U	N	P
7440-50-8	Copper	18.1		N	P
7439-89-6	Iron	4660			P
7439-92-1	Lead	2.2		*	F
7439-95-4	Magnesium	156	B		P
7439-96-5	Manganese	17.2			P
7439-97-6	Mercury	0.15	U		CV
7440-02-0	Nickel	16.5		N	P
7440-09-7	Potassium	136	B		P
7782-49-2	Selenium	0.46	U	N	F
7440-22-4	Silver	3.1	U		A
7440-23-5	Sodium	42.0	B		P
7440-28-0	Thallium	1.4	B	N	F
7440-62-2	Vanadium	3.7	B	N	P
7440-66-6	Zinc	7.0		EN	P
	Cyanide	1.5	U		C

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

DATE REPORTED: JULY 1, 1992

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H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

W POOL ~~SHALLOW~~ DEEP
7/7/92

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) SOIL Lab Sample ID: 9218720

Sample wt/vol: 30 (g/mL) G Lab File ID: >E6547

Level: (low/med) LOW Date Received: 6/09/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 6/18/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	870.	U
100-02-7	4-Nitrophenol	870.	U
132-64-9	Dibenzofuran	350.	U
121-14-2	2,4-Dinitrotoluene	350.	U
84-66-2	Diethylphthalate	350.	U
7005-72-3	4-Chlorophenyl-phenylether	350.	U
86-73-7	Fluorene	350.	U
100-01-6	4-Nitroaniline	870.	U
534-52-1	4,6-Dinitro-2-methylphenol	870.	U
86-30-6	N-Nitrosodiphenylamine (1)	350.	U
101-55-3	4-Bromophenyl-phenylether	350.	U
118-74-1	Hexachlorobenzene	350.	U
87-86-5	Pentachlorophenol	870.	U
85-01-8	Phenanthrene	350.	U
120-12-7	Anthracene	350.	U
86-74-8	Carbazole	350.	U
84-74-2	Di-n-butylphthalate	350.	U
206-44-0	Fluoranthene	350.	U
129-00-0	Pyrene	350.	U
85-68-7	Butylbenzylphthalate	350.	U
91-94-1	3,3'-Dichlorobenzidine	350.	U
56-55-3	Benzo(a)anthracene	350.	U
218-01-9	Chrysene	350.	U
117-81-7	bis(2-Ethylhexyl)phthalate	350.	U
117-84-0	Di-n-octylphthalate	350.	U
205-99-2	Benzo(b)fluoranthene	350.	U
207-08-9	Benzo(k)fluoranthene	350.	U
50-32-8	Benzo(a)pyrene	350.	U
193-39-5	Indeno(1,2,3-cd)pyrene	350.	U
53-70-3	Dibenz(a,h)anthracene	350.	U
191-24-2	Benzo(g,h,i)perylene	350.	U

(1) - Cannot be separated from Diphenylamine

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H2M LABS, INC.

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

POOLDW

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Matrix (soil/water): SOIL Lab Sample ID: 9218720

Level (low/med): LOW Date Received: 06/09/92

% Solids: 95.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2290		*	P
7440-36-0	Antimony	4.5	U		P
7440-38-2	Arsenic	1.9	B		F
7440-39-3	Barium	5.6	B	N	P
7440-41-7	Beryllium	0.23	B	N	P
7440-43-9	Cadmium	1.1	U	N*	A
7440-70-2	Calcium	72.1	B		P
7440-47-3	Chromium	11.9		N*	P
7440-48-4	Cobalt	1.2	U	N	P
7440-50-8	Copper	16.8		N	P
7439-89-6	Iron	5720			P
7439-92-1	Lead	2.0		*	F
7439-95-4	Magnesium	376	B		P
7439-96-5	Manganese	18.9			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	12.7		N	P
7440-09-7	Potassium	197	B		P
7782-49-2	Selenium	0.32	U	N	F
7440-22-4	Silver	2.1	U		A
7440-23-5	Sodium	36.6	B		P
7440-28-0	Thallium	0.95	B	N	F
7440-62-2	Vanadium	6.1	B	N	P
7440-66-6	Zinc	9.0		EN	P
	Cyanide	1.1	U		C

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

DATE REPORTED: JULY 1, 1992

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELDBLANK

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) ~~SOIL~~ WATER J 6/22 Lab Sample ID: 9218721

Sample wt/vol: 5 (g/mL) ML Lab File ID: >P9269

Level: (low/med) LOW Date Received:6/09/92

% Moisture: not dec.. Date Analyzed: 6/16/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:___________(ul) Soil Aliquot Volume:___________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
133-02-7	Xylene (total)	10.	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FIELDBLANK

Lab Name:H2M   Contract:NYSDEC

Lab Code:H2M   Case No.:.   SAS No.:.   SDG No.:GLE001

Matrix: (soil/water) WATER   Lab Sample ID: 9218721

Sample wt/vol: 5 (g/mL) ML   Lab File ID: >P9269

Level: (low/med) LOW   Date Received:6/9/92

% Moisture: not dec..   Date Analyzed: 6/16/92

GC Column: RTX-5 ID: 0.53 (mm)   Dilution Factor: 1.00000

Soil Extract Volume:________(ul)   Soil Aliquot Volume:________(UL)

Number TICs found: 0   CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	None Found			
2.				
3.				
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H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD BLANK

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) WATER Lab Sample ID: 9218721

Sample wt/vol: 1000 (g/mL) mL Lab File ID: >E6526

Level: (low/med) LOW Date Received: 6/09/92

% Moisture: -- decanted: (Y/N) -- Date Extracted: 6/13/92

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 6/16/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) N pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10.	U
111-44-4	bis(2-Chloroethyl)Ether	10.	U
95-57-8	2-Chlorophenol	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U
95-48-7	2-Methylphenol	10.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10.	U
106-44-5	4-Methylphenol	10.	U
621-64-7	N-Nitroso-Di-n-propylamine	10.	U
67-72-1	Hexachloroethane	10.	U
98-95-3	Nitrobenzene	10.	U
78-59-1	Isophorone	10.	U
88-75-5	2-Nitrophenol	10.	U
105-67-9	2,4-Dimethylphenol	10.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U
120-83-2	2,4-Dichlorophenol	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U
91-20-3	Naphthalene	10.	U
106-47-8	4-Chloroaniline	10.	U
87-68-3	Hexachlorobutadiene	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U
91-57-6	2-Methylnaphthalene	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U
88-06-2	2,4,6-Trichlorophenol	10.	U
95-95-4	2,4,5-Trichlorophenol	25.	U
91-58-7	2-Chloronaphthalene	10.	U
88-74-4	2-Nitroaniline	25.	U
131-11-3	Dimethylphthalate	10.	U
208-96-8	Acenaphthylene	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U
99-09-2	3-Nitroaniline	25.	U
83-32-9	Acenaphthene	10.	U

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~~S 0047~~

H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
FIELD BLANK

Lab Name: H2M LABS INC.   Contract: NYSDEC

Lab Code: H2M   Case No.: GLE   SAS No.: -----   SDG No.: 001

Matrix: (soil/water) WATER   Lab Sample ID: 9218721

Sample wt/vol: 1000 (g/mL) mL   Lab File ID: >E6526

Level: (low/med) LOW   Date Received: 6/09/92

% Moisture: -- decanted: (Y/N) --   Date Extracted: 6/13/92

Concentrated Extract Volume: 2000 (uL)   Date Analyzed: 6/16/92

Injection Volume: 2 (uL)   Dilution Factor: 1.00000

GPC Cleanup: (Y/N) N   pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	25.	U
100-02-7	4-Nitrophenol	25.	U
132-64-9	Dibenzofuran	10.	U
121-14-2	2,4-Dinitrotoluene	10.	U
84-66-2	Diethylphthalate	10.	U
7005-72-3	4-Chlorophenyl-phenylether	10.	U
86-73-7	Fluorene	10.	U
100-01-6	4-Nitroaniline	25.	U
534-52-1	4,6-Dinitro-2-methylphenol	25.	U
86-30-6	N-Nitrosodiphenylamine (1)	10.	U
101-55-3	4-Bromophenyl-phenylether	10.	U
118-74-1	Hexachlorobenzene	10.	U
87-86-5	Pentachlorophenol	25.	U
85-01-8	Phenanthrene	10.	U
120-12-7	Anthracene	10.	U
86-74-8	Carbazole	10.	U
84-74-2	Di-n-butylphthalate	10.	U
206-44-0	Fluoranthene	10.	U
129-00-0	Pyrene	10.	U
85-68-7	Butylbenzylphthalate	10.	U
91-94-1	3,3'-Dichlorobenzidine	10.	U
56-55-3	Benzo(a)anthracene	10.	U
218-01-9	Chrysene	10.	U
117-81-7	bis(2-Ethylhexyl)phthalate	10.	B
117-84-0	Di-n-octylphthalate	10.	U
205-99-2	Benzo(b)fluoranthene	10.	U
207-08-9	Benzo(k)fluoranthene	10.	U
50-32-8	Benzo(a)pyrene	10.	U
193-39-5	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3	Dibenz(a,h)anthracene	10.	U
191-24-2	Benzo(g,h,i)perylene	10.	U

(1) - Cannot be separated from Diphenylamine

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H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD BLANK

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) WATER Lab Sample ID: 9218721

Sample wt/vol: 1000 (g/mL) mL Lab File ID: >E6526

Level: (low/med) LOW Date Received: 6/09/92

% Moisture: -- decanted: (Y/N) -- Date Extracted: 6/13/92

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 6/16/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) N pH:--

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 80079	Benzene, 1,1'-sulfonylbis[4-	26.00	6.	J
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H2M LABS, INC. ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

FLDBLK

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Matrix (soil/water): WATER Lab Sample ID: 9218721

Level (low/med): LOW Date Received: 06/09/92

% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	27.8	B		P
7440-36-0	Antimony	21.4	U		P
7440-38-2	Arsenic	1.6	U		F
7440-39-3	Barium	6.8	U		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	5.0	U		A
7440-70-2	Calcium	81.2	B		P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	5.5	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	58.5	B		P
7439-92-1	Lead	1.8	U		F
7439-95-4	Magnesium	21.6	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	12.8	U		P
7440-09-7	Potassium	23.5	U		P
7782-49-2	Selenium	1.5	U		F
7440-22-4	Silver	10.0	U		A
7440-23-5	Sodium	318	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	5.0	U		P
7440-66-6	Zinc	28.8			P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

DATE REPORTED: JULY 1, 1992

FORM I - IN

H2M LABS, INC. ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

BACKRO

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Matrix (soil/water): SOIL Lab Sample ID: 9218718

Level (low/med): LOW Date Received: 06/09/92

% Solids: 96.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2550		*	P
7440-36-0	Antimony	4.4	U		P
7440-38-2	Arsenic	1.8	B		F
7440-39-3	Barium	8.0	B	N	P
7440-41-7	Beryllium	0.19	B	N	P
7440-43-9	Cadmium	1.0	U	N*	A
7440-70-2	Calcium	213	B		P
7440-47-3	Chromium	8.4		N*	P
7440-48-4	Cobalt	1.5	B	N	P
7440-50-8	Copper	3.6	B	N	P
7439-89-6	Iron	4640			P
7439-92-1	Lead	3.1		*	F
7439-95-4	Magnesium	530	B		P
7439-96-5	Manganese	80.9			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	7.1	B	N	P
7440-09-7	Potassium	217	B		P
7782-49-2	Selenium	0.31	U	N	F
7440-22-4	Silver	2.1	U		A
7440-23-5	Sodium	42.1	B		P
7440-28-0	Thallium	0.68	B	N	F
7440-62-2	Vanadium	7.2	B	N	P
7440-66-6	Zinc	10.9		EN	P
	Cyanide	1.0	U		C

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

DATE REPORTED: JULY 1, 1992

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET
TCLP

EPA SAMPLE NO.
W-POOL SHALLOW

Lab Name: H2M Contract: NYSDEC

Lab Code: H2M Case No.: . SAS No.: . SDG No.: GLE001

Matrix: (soil/water) WATER Lab Sample ID: 9218715

Sample wt/vol: 5 (g/mL) ML Lab File ID: >P9307

Level: (low/med) LOW Date Received: 6/9/92

% Moisture: not dec.. Date Analyzed: 6/17/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:__________(ul) Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4	Vinyl Chloride	10.	U
75-35-4	1,1-Dichloroethene	14.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
56-23-5	Carbon Tetrachloride	11.	U
79-01-6	Trichloroethene	12.	U
71-43-2	Benzene	11.	U
127-18-4	Tetrachloroethene	13.	U
108-90-7	Chlorobenzene	12.	U

FORM 1-CLP-VOA

9218715
West Pool Shallow

NYSDEC - ASP
FORM 1A
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)

Lab Name: HRM LABS INC Contract: [illegible]

Lab Code: HRMVB Case No.: GLE SAS No.: ____ SDG No.: 001

RCRA Waste Code	Analyte	Method Blank (mg/L)	Sample Result (mg/L)	Regulatory Limit* (mg/L)
	Volatiles			
D043	Vinyl Chloride			0.2
D029	1,1-Dichloroethene (1,1-Dichloroethylene)			0.7
D022	Chloroform			6.0
D028	1,2-Dichloroethane			0.5
D035	2-Butanone (Methylethyl ketone)			200
D019	Carbon Tetrachloride			0.5
D040	Trichloroethene (Trichloroethylene)			0.5
D018	Benzene			0.5
D039	Tetrachloroethene (Tetrachloroethylene)			0.7
D021	Chlorobenzene			100
	Semivolatiles			
* ~~D038~~	~~Pyridine~~			~~5.0~~
D027	1,4-Dichlorobenzene	.009 U	.009 U	7.5
D023	2-Methylphenol (o-Cresol)	.011 U	.011 U	200
D024, D025	3-Methylphenol (m-Cresol) 4-Methylphenol (p-Cresol)	.018 U	.018 U	200 200
D034	Hexachloroethane	.009 U	.009 U	3.0
D036	Nitrobenzene	.008 U	.008 U	2.0
D033	Hexachlorobutadiene	.010 U	.010 U	0.5
D042	2,4,6-Trichlorophenol	.009 U	.009 U	2.0
D041	2,4,5-Trichlorophenol	.039 U	.039 U	400
D030	2,4-Dinitrotoluene	.009 U	.009 U	0.13
D032	Hexachlorobenzene	.007 U	.007 U	0.13
D037	Pentachlorophenol	.039 U	.039 U	100
	Pesticides/Herbicides			
D020	Chlordane			0.03
D012	Endrin			0.02
D031	Heptachlor; Heptachlor Epoxide			0.008
D013	gamma-BHC (Lindane)			0.4
D014	Methoxychlor			10
D015	Toxaphene			0.5
D016	2,4-D			10
D017	2,4,5-TP (Silvex)			1.0

* Reference: Federal Register, Vol 55, No. 61, Thursday, March 29, 1990, pg. 11,862

FORM I-TCLP-1

* Pyridine is unreportable as the instrument was not calibrated for this compound, and it was not spiked in the MSB/MS/MSD.

H2M LABS, INC.

PESTICIDE ORGANICS ANALYSIS DATA SHEET
TCLP

SAMPLE NO.

W. Pool Shallow

Lab Name: H2M LABS, INC. Contract:

Lab Code: Case No: GLE01 SAS No: SDG No: GLE001

Matrix: (soil/water) Water Lab Sample ID: 9218715

Sample wt/vol: 100 (g/mL) ml Lab File ID: AC12635/BC12635

Level: (low/med) Low Date Received: 6/9/92

% Moisture: not dec. - dec. - Date TCLP Extracted: 6/14/92

Extraction: (SepF/Cont/Sonc) Sepf Date Extracted: 6/15/92

GPC Cleanup: (Y/N) N pH 7.0 Date Analyzed: 6/21/92

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/l or ug/kg) ug/L	Q
58-89-9	gamma-BHC (Lindane)	0.7	U
76-44-8	Heptachlor	0.7	U
1024-57-3	Heptachlor epoxide	0.6	U
72-20-8	Endrin	0.7	U
72-43-5	Methoxychlor	6.0	U
57-74-9	Chlordane	10	U
8001-35-2	Toxaphene	50	U

FORM I T-PEST

H2M LABS, INC.

TCLP
HERBICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
W. Pool Shallow

Lab Name: H2M LABS, INC.   Contract: ______

Lab Code: ______   Case No: ______   SAS No: ______   SDG No: GLE001

Matrix: (soil/water) Water   Lab Sample ID: 9218715

Sample wt/vol: 100 (g/ml) ml   Lab File ID: HERB-10

Level: (low/med) Low   Date Received: 6/9/92

% Moisture: not dec. ____ dec. ____   Date Extracted: 6/15/92

Extraction: (SepF/Cont/Sonc) SepF   Date Analyzed: 6/19/92

GPC Cleanup: (Y/N) N   pH ____   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
94-75-7	2,4-D	3	U
93-72-1	2,4,5-TP (SILVEX)	1	U

FORM I HERB

112

S 0055

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

POOLSW

Lab Name: H2M LABS, INC. Contract: TCLP METAL

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: TGLE01

Matrix (soil/water): WATER Lab Sample ID: 9218715

Level (low/med): LOW Date Received: 06/09/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	45.4	U		P
7440-39-3	Barium	53.6	B		P
7440-41-7	Beryllium				NR
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	28.8	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	65.7	U		P
7440-22-4	Silver	13.4		N	A
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

DATE REPORTED: JULY 2, 1992

FZM LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516)694-3040 FAX:(516)694-4122

LAB NO: 9218715

GALLI ENGINEERING
ANDY COLLINS
52 BROADWAY
GREENLAWN, NY 11740

TYPE...... SOIL
SPECIAL
METHOD.... GRAB

DATE COLLECTED. 06/09/92
DATE RECEIVED.. 06/09/92
COLLECTED BY... CL99

POINT NO:
LOCATION: WEST POOL SHALLOW
MS/MSD ALSO
REMARKS: MAGNASONICS SAMPLING

PARAMETER (S)	RESULTS	UNITS
FLASH POINT	>60	°C
PH (CORROS.)	5.0	units

114

COPIES TO:

DATE ISSUED 06/26/92

Stanley Isaacson
LABORATORY DIRECTOR

ORIGINAL

S 0057

M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122
ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

Galli Engineering
ndy Collins
Broadway
Greenlawn, NY 11740

Sample Lab No. 9218715
Date Collected: 6/9/92
Date Received: 6/9/92
Type: Soil
Point: West Pool Shallow
MS/MSD Also
Magnasonics Sampling
Collected By: CL 99

REACTIVITY

Reactive to Water:	No	
eleases Cyanide:	No	< 5.3 ug/kg
eleases Sulfide:	Yes	228 mg/kg

ate Reported: 6/26/92

John J. Molloy, P.E.
Laboratory Director

115

S 0058

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET
TCLP

EPA SAMPLE NO.

E-POOL SHALLOW

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) WATER Lab Sample ID: 9218716

Sample wt/vol: 5 (g/mL) ML Lab File ID: >P9310

Level: (low/med) LOW Date Received: 6/9/92

Moisture: not dec.. Date Analyzed: 6/17/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:__________(ul) Soil Aliquot Volume:__________(ul)

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND	ug/L	Q
75-01-4	Vinyl Chloride	10.	U
75-35-4	1,1-Dichloroethene	14.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
56-23-5	Carbon Tetrachloride	11.	U
79-01-6	Trichloroethene	12.	U
71-43-2	Benzene	13000.	E
127-18-4	Tetrachloroethene	13.	U
108-90-7	Chlorobenzene	12.	U

FORM 1-CLP-VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EPOOLSHALLOW DL

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) WATER Lab Sample ID: 9218716DL

Sample wt/vol: 5 (g/mL) ML Lab File ID: >P9326

Level: (low/med) LOW Date Received: 6/9/92

% Moisture: not dec.. Date Analyzed: 6/18/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1000

Soil Extract Volume:__________(ul) Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4	Vinyl Chloride	10000.	U
75-35-4	1,1-Dichloroethene	14000.	U
67-66-3	Chloroform	12000.	U
107-06-2	1,2-Dichloroethane	10000.	U
78-93-3	2-Butanone	10000.	U
56-23-5	Carbon Tetrachloride	11000.	U
79-01-6	Trichloroethene	12000.	U
71-43-2	Benzene	190000.	DB
127-18-4	Tetrachloroethene	13000.	U
108-90-7	Chlorobenzene	120000	U

FORM 1-CLP-VOA

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S 0060

9210716

East Pool Shallow

NYSDEC - ASP
FORM 1A
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.:_____ SDG No.: [illegible]

RCRA Waste Code	Analyte	Method Blank (mg/L)	Sample Result (mg/L)	Regulatory Limit* (mg/L)
	Volatiles			
D043	Vinyl Chloride			0.2
D029	1,1-Dichloroethene (1,1-Dichloroethylene)			0.7
D022	Chloroform			6.0
D028	1,2-Dichloroethane			0.5
D035	2-Butanone (Methylethyl ketone)			200
D019	Carbon Tetrachloride			0.5
D040	Trichloroethene (Trichloroethylene)			0.5
D018	Benzene			0.5
D039	Tetrachloroethene (Tetrachloroethylene)			0.7
D021	Chlorobenzene			100
	Semivolatiles			
* ~~D038~~	~~Pyridine~~			~~5.0~~
D027	1,4-Dichlorobenzene	.004 U	.009 U	7.5
D023	2-Methylphenol (o-Cresol)	.011 U	.010 U	200
D024, D025	3-Methylphenol (m-Cresol) 4-Methylphenol (p-Cresol)	.012 U	.018 U	200 200
D034	Hexachloroethane	.004 U	.009 U	3.0
D036	Nitrobenzene	.008 U	.008 U	2.0
D033	Hexachlorobutadiene	.010 U	.010 U	0.5
D042	2,4,6-Trichlorophenol	.009 U	.009 U	2.0
D041	2,4,5-Trichlorophenol	.039 U	.039 U	400
D030	2,4-Dinitrotoluene	.004 U	.004 U	0.13
D032	Hexachlorobenzene	.007 U	.007 U	0.13
D037	Pentachlorophenol	.039 U	.039 U	100
	Pesticides/Herbicides			
D020	Chlordane			0.03
D012	Endrin			0.02
D031	Heptachlor; Heptachlor Epoxide			0.008
D013	gamma-BHC (Lindane)			0.4
D014	Methoxychlor			10
D015	Toxaphene			0.5
D016	2,4-D			10
D017	2,4,5-TP (Silvex)			1.0

* Reference: Federal Register, Vol 55, No. 61, Thursday, March 29, 1990, pg. 11,862

FORM I-TCLP-1

* Pyridine is unreportable as the instrument was not calibrated for this compound, and it was not spiked in the MSB/MS/MSD.

H2M LABS, INC.

PESTICIDE ORGANICS ANALYSIS DATA SHEET
TCLP

SAMPLE NO.
E. Pool Shallow

Lab Name: H2M LABS, INC. Contract: ____________

Lab Code: ________ Case No: GLE01 SAS No: ________ SDG No: GLE001

Matrix: (soil/water) Water Lab Sample ID: 9218716

Sample wt/vol: 100 (g/mL) ml Lab File ID: AC12638/BC12638

Level: (low/med) Low Date Received: 6/9/92

% Moisture: not dec. - dec. " - Date TCLP Extracted: 6/14/92

Extraction: (SepF/Cont/Sonc) Sepf Date Extracted: 6/15/92

GPC Cleanup: (Y/N) N pH 7.0 Date Analyzed: 6/21/92

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/l or ug/kg) ug/L	Q
58-89-9	gamma-BHC (Lindane)	0.7	U
76-44-8	Heptachlor	0.7	U
1024-57-3	Heptachlor epoxide	0.6	U
72-20-8	Endrin	0.7	U
72-43-5	Methoxychlor	6.0	U
57-74-9	Chlordane	10	U
8001-35-2	Toxaphene	50	U

H2M LABS, INC.

TCLP
HERBICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
E. Pool Shallow

Lab Name: H2M LABS, INC. Contract:

Lab Code: Case No: SAS No: SDG No: GLE001

Matrix: (soil/water) Water Lab Sample ID: 9218716

Sample wt/vol: 100 (g/ml) ml Lab File ID: HERB-15

Level: (low/med) Low Date Received: 6/9/92

% Moisture: not dec. dec. Date Extracted: 6/15/92

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6/19/92

GPC Cleanup: (Y/N) N pH Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
94-75-7	2,4-D	3	U
93-72-1	2,4,5-TP (SILVEX)	1	U

FORM I HERB

120

S 0063

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

POOLSE

Lab Name: H2M LABS, INC.   Contract: TCLP METAL

Lab Code: H2MLAB   Case No.:   SAS No.:   SDG No.: TGLE01

Matrix (soil/water): WATER   Lab Sample ID: 9218716

Level (low/med): LOW   Date Received: 06/09/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	45.4	U		P
7440-39-3	Barium	67.6	B		P
7440-41-7	Beryllium				NR
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	13.1			P
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	28.8	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	65.7	U		P
7440-22-4	Silver	10.0	U	N	A
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS   Clarity Before: CLEAR   Texture:

Color After: COLORLESS   Clarity After: CLEAR   Artifacts:

Comments:

DATE REPORTED: JULY 2, 1992

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122
ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

Galli Engineering
Andy Collins
52 Broadway
Greenlawn, NY 11740

Sample Lab No. 9218716
Date Collected: 6/9/92
Date Received: 6/9/92
Type: Soil
Point: East Pool
Magnasonics Sampling
Collected By: CL 99

REACTIVITY

Reactive to Water:	No	
Releases Cyanide:	No	< 12.0 ug/kg
Releases Sulfide:	Yes	501 mg/kg

Date Reported: 6/26/92

John J. Molloy, P.E.
Laboratory Director

NYTEST/H2M LABS, INC. 575 Broad Hollow Road, Melville, N.Y. 11747
(516)694-3040 FAX:(516)694-4122

LAB NO: 9218716

GALLI ENGINEERING
ANDY COLLINS
52 BROADWAY
GREENLAWN, NY 11740

TYPE...... SOIL
SPECIAL
METHOD.... GRAB

DATE COLLECTED. 06/09/92
DATE RECEIVED.. 06/09/92
COLLECTED BY... CL99

POINT NO:
LOCATION: EAST POOL SHALLOW

REMARKS: MAGNASONICS SAMPLING

PARAMETER (S)	RESULTS	UNITS
FLASH POINT	>60	°C
PH (CORROS.)	3.6	units

COPIES TO:

123

DATE ISSUED 06/26/92

Stanley Madison
LABORATORY DIRECTOR

ORIGINAL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EAST DYWELL

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) WATER Lab Sample ID: 9218717

Sample wt/vol: 5 (g/mL) ML Lab File ID: >P9327

Level: (low/med) LOW Date Received: 6/9/92

% Moisture: not dec.. Date Analyzed: 6/18/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:__________(ul) Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4	Vinyl Chloride	10.	U
75-35-4	1,1-Dichloroethene	14.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
56-23-5	Carbon Tetrachloride	11.	U
79-01-6	Trichloroethene	12.	U
71-43-2	Benzene	11.	U
127-18-4	Tetrachloroethene	13.	U
108-90-7	Chlorobenzene	12.	U

FORM 1-CLP-VOA

9218717

East Drywell.

NYSDEC - ASP
FORM 1A
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.:_____ SDG No.: [illegible]

RCRA Waste Code	Analyte	Method Blank (mg/L)	Sample Result (mg/L)	Regulatory Limit* (mg/L)
	Volatiles			
D043	Vinyl Chloride			0.2
D029	1,1-Dichloroethene (1,1-Dichloroethylene)			0.7
D022	Chloroform			6.0
D028	1,2-Dichloroethane			0.5
D035	2-Butanone (Methylethyl ketone)			200
D019	Carbon Tetrachloride			0.5
D040	Trichloroethene (Trichloroethylene)			0.5
D018	Benzene			0.5
D039	Tetrachloroethene (Tetrachloroethylene)			0.7
D021	Chlorobenzene			100
	Semivolatiles			
* ~~D038~~	~~Pyridine~~			~~5.0~~
D027	1,4-Dichlorobenzene	.009 U	.010 U	7.5
D023	2-Methylphenol (o-Cresol)	.011 U	.011 U	200
D024, D025	3-Methylphenol (m-Cresol) 4-Methylphenol (p-Cresol)	.018 U	.018 U	200 200
D034	Hexachloroethane	.004 U	.009 U	3.0
D036	Nitrobenzene	.008 U	.008 U	2.0
D033	Hexachlorobutadiene	.010 U	.010 U	0.5
D042	2,4,6-Trichlorophenol	.009 U	.010 U	2.0
D041	2,4,5-Trichlorophenol	.039 U	.042 U	400
D030	2,4-Dinitrotoluene	.009 U	.010 U	0.13
D032	Hexachlorobenzene	.007 U	.007 U	0.13
D037	Pentachlorophenol	.039 U	.042 U	100
	Pesticides/Herbicides			
D020	Chlordane			0.03
D012	Endrin			0.02
D031	Heptachlor; Heptachlor Epoxide			0.008
D013	gamma-BHC (Lindane)			0.4
D014	Methoxychlor			10
D015	Toxaphene			0.5
D016	2,4-D			10
D017	2,4,5-TP (Silvex)			1.0

* Reference: Federal Register, Vol 55, No. 61, Thursday, March 29, 1990, pg. 11,862

FORM I-TCLP-1

* Pyridine is unreportable as the instrument was not calibrated for this compound, and it was not spiked in the MSB/MS/MSD's.

B-204

12/91 125

S 0068

H2M LABS, INC.

PESTICIDE ORGANICS ANALYSIS DATA SHEET
TCLP

SAMPLE NO.

East Dry Well

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: ____ Case No: GLE01 SAS No: ____ SDG No: GLE001

Matrix: (soil/water) Water Lab Sample ID: 9218717

Sample wt/vol: 100 (g/mL) ml Lab File ID: AC12639/BC12639

Level: (low/med) Low Date Received: 6/9/92

% Moisture: not dec. - dec. " - Date TCLP Extracted: 6/14/92

Extraction: (SepF/Cont/Sonc) Sepf Date Extracted: 6/15/92

GPC Cleanup: (Y/N) N pH 7.0 Date Analyzed: 6/21/92

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/l or ug/kg) ug/L	Q
58-89-9	gamma-BHC (Lindane)	0.7	U
76-44-8	Heptachlor	0.7	U
1024-57-3	Heptachlor epoxide	0.6	U
72-20-8	Endrin	0.7	U
72-43-5	Methoxychlor	6.0	U
57-74-9	Chlordane	10	U
8001-35-2	Toxaphene	50	U

H2M LABS, INC.

TCLP
HERBICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
East Drywell

Lab Name: H2M LABS, INC. Contract: ______

Lab Code: ______ Case No: ______ SAS No: ______ SDG No: GLE001

Matrix: (soil/water) Water Lab Sample ID: 9218717

Sample wt/vol: 100 (g/ml) ml Lab File ID: HERB-14

Level: (low/med) Low Date Received: 6/9/92

% Moisture: not dec. ____ dec. ____ Date Extracted: 6/15/92

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6/19/92

GPC Cleanup: (Y/N) N pH ___ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
94-75-7	2,4-D	3	U
93-72-1	2,4,5-TP (SILVEX)	1	U

FORM I HERB

U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

DRYWEL

Name: H2M LABS, INC. Contract: TCLP METAL

Code: H2MLAB Case No.: SAS No.: SDG No.: TGLE01

ix (soil/water): WATER Lab Sample ID: 9218717

el (low/med): LOW Date Received: 06/09/92

ids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	45.4	U		P
7440-39-3	Barium	243			P
7440-41-7	Beryllium				NR
7440-43-9	Cadmium	18.3			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	16.5			P
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	3040			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	65.7	U		P
7440-22-4	Silver	10.0	U	N	A
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

efore: COLORLESS Clarity Before: CLEAR Texture:

After: COLORLESS Clarity After: CLEAR Artifacts:

s:

REPORTED: JULY 2, 1992

H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

Galli Engineering
Andy Collins
52 Broadway
Greenlawn, NY 11740

Sample Lab No. 9218717
Date Collected: 6/9/92
Date Received: 6/9/92
Type: Soil
Point: East Drywell
Magnasonics Sampling
Collected By: CL 99

REACTIVITY

Reactive to Water:	No	
Releases Cyanide:	No	< 6.7 ug/kg
Releases Sulfide:	No	< 33.3 mg/kg

Date Reported: 6/26/92

John J. Molloy, P.E.
Laboratory Director

FZM LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516)694-3040 FAX:(516)694-4122

LAB NO: 9218717

GALLI ENGINEERING
ANDY COLLINS
52 BROADWAY
GREENLAWN, NY 11740

TYPE...... SOIL
SPECIAL
METHOD.... GRAB

DATE COLLECTED. 06/09/92
DATE RECEIVED.. 06/09/92
COLLECTED BY... CL99

POINT NO:
LOCATION: EAST DRYWELL

REMARKS: MAGNASONICS SAMPLING

PARAMETER (S)	RESULTS	UNITS
FLASH POINT	>60	°C
PH (CORROS.)	6.0	units

COPIES TO:

130

DATE ISSUED 06/26/92

Stanley Isaacson

LABORATORY DIRECTOR

ORIGINAL

S 0073

H2M LABS, INC.

5. **SURROGATE SPIKE ANALYSIS RESULTS**
   5.1 TCL AND TCLP VOLATILES
   5.2 TCL AND TCLP SEMI-VOLATILES
   5.3 TCLP PESTICIDES/PCBS
   5.4 TCLP HERBICIDES

ER JMW 6/30/92

2A

WATRE VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:H2M Contract:NYSDEC

Lab Code: H2M Case No.: . SAS No.: . SDG No.: GLE001

Level:(low/med) LOW

	NYSDEC SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	VBLK16	103	100	102		0
02	FIELDBLANK	106	98	95		0
03	FIELDBLANK	106	98	95		0
04	VBLK17	109	99	98		0
05	MSB17	99	92	87		0
06	VTCLPBLANK16	106	97	100		0
07	WPOOLSHALLOW	110	100	98		0
08	OLSHALLOWMS	108	103	97		0
09	OLSHALLOWMSD	110	101	102		0
10	EPOOLSHALLOW	60*	102	64*		2
11	VBLK18	102	102	103		0
12	EPOOLSHALLDL	100	106	122*		1
13	EAST DRYWELL	100	104	116*		1
14	EASTDRYSPIKE	102	106	124*		1
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of Protocol required QC limits

D System Monitoring Compound out

FORM II-CLP-VOA-1

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: H2M　　　　　　　　Contract: NYSDEC

Lab Code: H2M　　Case No.: .　　SAS No.: .　　SDG No.: GLE001

Level: (low/med) LOW

	NYSDEC SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	VBLK15	103	102	100		0
02	MSB15	106	101	100		0
03	EPOLLDEEPMS	114	89	105		0
04	EPOLLDEEPMSD	111	96	101		0
05	WPOLLDEEP	104	100	106		0
06	VBLK16(SOIL)	104	99	96		0
07	EPOOLDEEPRE	113	84	95		0
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC LIMITS
SMC1 (TOL) = Toluene-d8	(84-138)
SMC2 (BFB) = Bromofluorobenzene	(59-113)
SMC3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of Protocol required QC limits

D System Monitoring Compound out

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	FIELD BLANK	63	71	57	79	94	109	77	68	0
02	SBLK 174	55	64	55	51	59	65	61	62	0
03	SBLK (6/14)	60	72	77	38	50	98	77	60	0
04	MSB (6/14)	60	69	113	68	77	92	64	63	0
05	W POOL SHALLOW	55	69	70	28	37	77	58	56	0
06	W SHALLOW MS	58	65	102	27	52	92	66	57	0
07	W SHALLOW MSD	60	68	112	32	57	101	71	61	0
08	E POOL SHALLOW	56	68	45	28	27	81	61	53	0
09	EAST DRYWELL	52	63	41	35	42	81	62	54	0
10										
11										
12										
13										
14										
15										
16										
17										
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20										
21										
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26										
27										
28										
29										
30										

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(35-114)	
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S3 (TPH)	= Terphenyl-d14	(33-141)	
S4 (PHL)	= Phenol-d5	(10-110)	
S5 (2FP)	= 2-Fluorophenol	(21-110)	
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S7 (2CP)	= 2-Chlorophenol-d4	(33-110)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

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S 0077

H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

2

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: H2M LABS INC.   Contract: NYSDEC

Lab Code: H2M   Case No.: GLE   SAS No.: -----   SDG No.: 001

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	SBLK 176	46	60	56	49	53	53	59	52	0
02	MSB (6/14)	54	68	67	64	62	65	65	58	0
03	E DEEP MS	59	71	66	65	62	69	64	61	0
04	E DEEP MSD	33	41	42	39	34	24	39	37	0
05	W POOL ~~SHALLOW~~ Deep	32	40	41	35	36	31	41	35	0
06	E POOL DEEP	32	39	40	43	37	38	44	35	0
07										
08										
09										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

135

S 0078

H2M LABS, INC.

WATER PESTICIDE SURROGATE RECOVERY

Lab Name: H2M LABS, INC. Contract: ____________

Lab Code: ________ Case No: GLE01 SAS No: ________ SDG No: GLE001

GC Column (1): RTX-5 ID: 0.53 (mm) GC Column (1): RTX-35 ID: 0.53 (mm)

	SAMPLE NO.	TCX 1 % REC #	TCX 2 % REC #	DCB 1 % REC #	DCB 2 % REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK-1	80	82	37*	41*			2
02	MSB 6/15	1)	1)	1)	1)			1)
03	MSBD 6/15	1)	1)	1)	1)			1)
04	W. Pool Shallow	86	88	94	97			0
05	E. Pool Shallow	87	81	90	93			0
06	East Dry Well	80	85	92	95			0
07	W. Pool Shallow MS	88	90	96	99			0
08	W. Pool Shallow MSD	81	83	88	91			0
09	Field Blank	81	83	95	99			0
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	ADVISORY QC LIMITS
(TCX) = Tetrachloro-m-xylene	(60-150)
(DCB) = Decachlorobiphenyl	(60-150)

\# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out
1) Surrogate not spiked

COMMENTS: ____________

H2M LABS, INC.

TCLP
WATER HERBICIDE SURROGATE RECOVERY

Lab Name: H2M LABS, INC. Contract: ____________

Lab Code: ______ Case No: GLE01 SAS No: ______ SDG No: GLE001

	SAMPLE NO.	S1 (2,4,5-T)	#	OTHER
01	W. Pool Shallow	50		
02	W. Pool Shallow MS	96		
03	W. Pool Shallow MSD	109		
04	E. Pool Shallow	95		
05	East Dry Well	93		
06	MSB 6/15	92		
07	TB-6/15	92		
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				

	QC LIMITS
S1 (2,4,5-T)	(26-120)

\# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

COMMENTS: ____________

Page 1 of 1

FORM II HERB-1

H2M LABS, INC.

6. MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY
   - 6.1 TCL AND TCLP VOLATILES
   - 6.2 TCL AND TCLP SEMI-VOLATILES
   - 6.3 TCLP PESTICIDES/PCBS
   - 6.4 TCLP HERBICIDES

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3B
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:H2M Contract:NYSDEC

Lab Code: H2M Case No.: . SAS No.: . SDG No.: GLE001

Matrix Spike - NYDEC Sample No.: EPOOLDEEP Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	89.44	0.00	73.29	82	59-172
Trichloroethene	89.44	0.00	68.53	77	62-137
Benzene	89.44	0.00	80.20	90	66-142
Toluene	89.44	0.00	83.34	93	59-139
Chlorobenzene	89.44	0.00	77.21	86	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	87.41	68.53	78	7	22	59-172
Trichloroethene	87.41	70.30	80	3	24	62-137
Benzene	87.41	80.00	92	0	21	66-142
Toluene	87.41	82.90	95	1	21	59-139
Chlorobenzene	87.41	78.44	90	2	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: ______________________________

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S 0082

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: H2M Contract: NYSDEC

Lab Code: H2M Case No.: . SAS No.: . SDG No.: GLE001

Matrix Spike - NYDEC Sample No.: WPOOLSHALLOW Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	68.	0.00	50.	74	61-145
Trichloroethene	62.	0.00	58.	94	71-120
Benzene	57.	0.00	58.	102	76-127
Chlorobenzene	63.	0.00	70.	111	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	68.	50.	73	0	14	61-145
Trichloroethene	62.	58.	93	0	14	71-120
Benzene	57.	56.	98	4	11	76-127
Chlorobenzene	63.	67.	106	4	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: ______________________________

SOIL VOLATILE MATRIX SPIKE BLANK

Lab Name:H2M Contract:.NYSDEC

Lab Code:H2M Case No.:LMS SAS No.:. SDG No.: GLE001

Matrix Spike - EPA Sample No.: MSB15

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.00	38.4	77	61-145
Trichloroethene	50.0	0.00	40.7	81	71-120
Benzene	50.0	0.00	42.5	85	76-127
Toluene	50.0	0.00	43.3	87	76-125
Chlorobenzene	50.0	0.00	44.8	90	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

COMMENTS: ______________________________

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WATER VOLATILE MATRIX SPIKE BLANK

Lab Name:H2M Contract:.NYSDEC

Lab Code:H2M Case No.:LMS SAS No.:. SDG No.: GLE001

Matrix Spike - EPA Sample No.: MSB17

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.00	35.3	71	61-145
Trichloroethene	50.0	0.00	49.5	99	71-120
Benzene	50.0	0.00	52.3	105	76-127
Toluene	50.0	0.00	50.1	100	76-125
Chlorobenzene	50.0	0.00	50.6	101	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

COMMENTS:

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

3D
SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix Spike - EPA Sample No.: E.POOL DEEP Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	3800.00	0.00	3100.00	82	26- 90
2-Chlorophenol	3800.00	0.00	3300.00	87	25-102
1,4-Dichlorobenzene	2600.00	0.00	2300.00	88	28-104
N-Nitroso-di-n-prop.(1)	2600.00	0.00	2100.00	81	41-126
1,2,4-Trichlorobenzene	2600.00	0.00	2400.00	92	38-107
4-Chloro-3-methylphenol	3800.00	0.00	3800.00	100	26-103
Acenaphthene	2600.00	0.00	2700.00	104	31-137
4-Nitrophenol	3800.00	0.00	3100.00	82	11-114
2,4-Dinitrotoluene	2600.00	0.00	2100.00	81	28- 89
Pentachlorophenol	3800.00	0.00	2900.00	76	17-109
Pyrene	2600.00	0.00	2400.00	92	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	3800.00	1900.00	50	50 *	35	26- 90
2-Chlorophenol	3800.00	2000.00	53	53 *	50	25-102
1,4-Dichlorobenzene	2600.00	1400.00	54	54 *	27	28-104
N-Nitroso-di-n-prop.(1)	2600.00	1200.00	46	46 *	38	41-126
1,2,4-Trichlorobenzene	2600.00	1500.00	58	58 *	23	38-107
4-Chloro-3-methylphenol	3800.00	2100.00	55	55 *	33	26-103
Acenaphthene	2600.00	1700.00	65	65 *	19	31-137
4-Nitrophenol	3800.00	670.00	18	129 *	50	11-114
2,4-Dinitrotoluene	2600.00	1100.00	42	63 *	47	28- 89
Pentachlorophenol	3800.00	0.00	0 *	200 *	47	17-109
Pyrene	2600.00	1500.00	58	46 *	36	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of qc limits

RPD: 11 out of 11 outside limits
Spike Recovery: 1 out of 22 outside limits

COMMENTS: 6/18/92: >E6545 (MS) & >E6546 (MSD).

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NYSDEC - ASP
FORM 2A
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY RESULTS

Lab Name: H2M Contract: NYSDEC

Lab Code: H2M Case No.: RLE SAS No.: ____ SDG No.: 001

Analyte	Sample Result (mg/L)	Matrix Spike Result (mg/L)	%R	Matrix Spike Dup. Result (mg/L)	%R	%RPD
Volatiles						
Vinyl Chloride						
1,1-Dichloroethene						
Chloroform						
1,2-Dichloroethane						
2-Butanone						
Carbon Tetrachloride						
Trichloroethene						
Benzene						
Tetrachloroethene						
Chlorobenzene						
Semivolatiles						
* ~~Pyridine~~						
1,4-Dichlorobenzene	.009 U	.113	111	.121	116	7
2-Methylphenol	.011 U	.120	117	.077	74	44
3-Methylphenol; 4-Methylphenol	.012 U	.111	108	.130	125	16
Hexachloroethane	.009 U	.114	112	.125	121	9
Nitrobenzene	.008 U	.126	124	.147	141	8
Hexachlorobutadiene	.010 U	.103	101	.112	108	8
2,4,6-Trichlorophenol	.004 U	.109	107	.122	117	11
2,4,5-Trichlorophenol	.034 U	.126	124	.140	135	11
2,4-Dinitrotoluene	.009 U	.109	106	.123	114	12
Hexachlorobenzene	.007 U	.146	143	.164	153	12
Pentachlorophenol	.039 U	.122	119	.141	136	14
Pesticides/Herbicides						
Chlordane						
Endrin						
Heptachlor; Heptachlor Epoxide						
gamma-BHC (Lindane)						
Methoxychlor						
Toxaphene						
2,4-D						
2,4,5-TP (Silvex)						

FORM II-TCLP-1

* Pyridine was unreportable as the instrument was not calibrated for this cpd; and it was not spiked into the MSB/MS/MSD.

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122
ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: H2M LABS, INC. Contract: GLE-01

Lab Code: ________ Case No: ________ SAS No: ________ SDG No:

Matrix Spike - EPA Sample No.: W. POOL SHALLOW

Compound	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
gamma-BHC (Lindane)	2.0	0.0	1.68	84	19-140
Heptachlor	2.0	0.0	1.69	85	34-111
Heptachlor Epoxide	2.0	0.0	1.73	87	37-142
Endrin	2.0	0.0	1.71	86	30-147
Methoxychlor	34.0	0.0	33.5	99	1.)

Compound	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MSD % REC	% RPD	QC LIMITS REC.
gamma-BHC (Lindane)	2.0	1.51	75	11	19-140
Heptachlor	2.0	1.54	77	10	34-111
Heptachlor Epoxide	2.0	1.80	90	3	37-142
Endrin	2.0	1.52	76	12	30-147
Methoxychlor	34.0	30.2	89	11	1.)

Column to be used to flag recovery values with an asterisk.

* Values outside of QC limits.

Spike Recovery: 0 out of 10 outside limits

COMMENTS: 1.) QC limits for methoxychlor not established.

FORM III - PEST-5

H2M LABS, INC.

WATER PESTICIDE MATRIX SPIKE BLANK/
MATRIX SPIKE BLANK DUPLCIATE RECOVERY

Lab Name: H2M LABS, INC. Contract: ______

Lab Code: ______ Case No: ______ SAS No: ______ SDG No: GLE001

Matrix Spike - Sample No.: MSB 6/15/MSBD 6/15

Compound	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MSB CONCENTRATION (ug/L)	MSB % REC	#	QC LIMITS REC.
Toxaphene	50	0	22.7	45.4		41-126

Compound	SPIKE ADDED (ug/L)	MSBD CONCENTRATION (ug/L)	MSBD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
Technical Chlordane	50.0	52.7	105					32-127

\# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: ____ out of ____ outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: ______

FORM III PEST-3

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S 0090

H2M LABS, INC.

TCLP
WATER HERBICIDE MATRIX SPIKE BLANK

Lab Name: H2M LABS, INC. Contract: ________

Lab Code: ________ Case No: GLE01 SAS No: ________ SDG No: GLE001

Matrix Spike - Sample No.: MSB 6/15

Compound	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MSB CONCENTRATION (ug/L)	MSB % REC	#	QC LIMITS REC.
2,4-D	12.5	0	14.3	114		30-125
2,4,5-TP	5	0	3.8	76		25-120

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS: ________

FORM III HERB-3

H2M LABS, INC.

7. **DUPLICATE SAMPLE SUMMARY**
   7.1 TCL AND TCLP METALS
   7.2 REATIVITY, CORROSIVITY, FLASHPOINT

H2M LABS, INC. U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

BACKROD

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 96.9 % Solids for Duplicate: 96.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		2554.7988		2009.9690		23.9	*	P
Antimony		4.4169	U	4.4169	U			P
Arsenic		1.7544	B	1.2797	B	31.3		F
Barium		8.0495	B	6.9763	B	14.3		P
Beryllium		0.1858	B	0.1238	B	40.1		P
Cadmium	1.0	1.0320	U	1.4448		200.0		A
Calcium		212.7348	B	175.4799	B	19.2		P
Chromium	2.1	8.3591		6.2332		29.1	*	P
Cobalt		1.4861	B	2.0433	B	31.6		P
Copper		3.5501	B	3.0960	B	13.7		P
Iron		4637.9154		3871.2900		18.0		P
Lead	0.6	3.1373		2.4768		23.5	*	F
Magnesium		530.4438	B	325.7379	B	47.8		P
Manganese		80.9288		79.6078		1.6		P
Mercury		0.1007	U	0.0992	U			CV
Nickel		7.0795	B	5.6966	B	21.6		P
Potassium		216.7802	B	152.8999	B	34.6		P
Selenium		0.3096	U	0.3096	U			F
Silver	2.1	2.0640	U	2.0640	U			A
Sodium		42.1465	B	41.9401	B	0.5		P
Thallium		0.6811	B	0.7224	B	5.9		F
Vanadium		7.2033	B	5.0361	B	35.4		P
Zinc	4.1	10.8566		8.7926		21.0		P
Cyanide	1.0	1.0320	U	1.0320	U			C

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H2M LABS, INC.

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

POOLSWD

Lab Name: H2M LABS, INC. Contract: TCLP METAL

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: TGLE01

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic		45.4000	U	45.4000	U			P
Barium		53.5000	B	54.0000	B	0.9		P
Beryllium								
Cadmium		2.7000	U	2.7000	U			P
Calcium								
Chromium		6.0000	U	6.0000	U			P
Cobalt								
Copper								
Iron								
Lead		28.8000	U	28.8000	U			P
Magnesium								
Manganese								
Mercury		0.2000	U	0.2000	U			CV
Nickel								
Potassium								
Selenium		65.7000	U	65.7000	U			P
Silver	10.0	20.0000		30.0000		40.0		A
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

150

H2M LABS INC

WET CHEM Q.C. SUMMARY

CLIENT ID NO. W. POOL SHALLOW.

LAB NO. 9218715 DATE RECEIVED 6/9/92.

UNITS MG/KG * = UG/KG MATRIX WATER.

ANALYTE	BLANK	SPIKED SAMPLE RESULT	SPIKE ADDED	SAMPLE RESULT	PERCENT RECOVERY	INITIAL SAMPLE RESULT	DUPLICATE SAMPLE RESULT	RPD	H2M LAB. NO. OF SAMPLE USED FOR MS/MSD
SULFIDE	<0.5	33.8	59.1	228	-328.6	228	-	-	9218715
CYANIDE*	<5.0	22.8	25.0	<5.3	91.2	<5.3	-	-	9218715

S 0096

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H2M LABS, INC. ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

BACKROS

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 96.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	105.9856		4.4169	U	103.20	102.7		P
Arsenic	75-125	10.7534		1.7544	B	8.26	108.9		F
Barium	75-125	527.8638		8.0495	B	412.80	125.9	N	P
Beryllium	75-125	13.8700		0.1858	B	10.32	132.6	N	P
Cadmium	75-125	13.4159		1.0320	U	10.32	130.0	N	A
Calcium									NR
Chromium	75-125	61.3209		8.3591		41.28	128.3	N	P
Cobalt	75-125	139.8555		1.4861	B	103.20	134.1	N	P
Copper	75-125	69.8865		3.5501	B	51.60	128.6	N	P
Iron									NR
Lead	75-125	8.1734		3.1373		4.13	121.9		F
Magnesium									NR
Manganese	75-125	206.8731		80.9288		103.20	122.0		P
Mercury	75-125	0.5561		0.1007	U	0.50	111.2		CV
Nickel	75-125	141.6305		7.0795	B	103.20	130.4	N	P
Potassium									NR
Selenium	75-125	2.7657		0.3096	U	2.06	134.3	N	F
Silver	75-125	10.3199		2.0640	U	10.32	100.0		A
Sodium									NR
Thallium	75-125	13.6636		0.6811	B	10.32	125.8	N	F
Vanadium	75-125	152.5077		7.2033	B	103.20	140.8	N	P
Zinc	75-125	143.1166		10.8566		103.20	128.2	N	P
Cyanide	75-125	9.9897		1.0320	U	10.32	96.8		C

Comments:

H2M LABS, INC. U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

BACKROA

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium		426.50		39.00	B	400.0	96.9		P
Beryllium		11.20		0.90	B	10.0	103.0		P
Cadmium		7.00		5.00	U	10.0	70.0		A
Calcium									NR
Chromium		114.70		40.50		80.0	92.8		P
Cobalt		105.40		7.20	B	100.0	98.2		P
Copper		66.50		17.20	B	50.0	98.6		P
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel		104.10		34.30	B	80.0	87.2		P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium		133.50		34.90	B	100.0	98.6		P
Zinc		144.20		52.60		100.0	91.6		P
Cyanide									NR

Comments:

H2M LABS, INC. U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

POOLSWS

Lab Name: H2M LABS, INC. Contract: TCLP METAL

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: TGLE01

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									NR
Arsenic	75-125	876.9000		45.4000	U	1000.00	87.7		NR
Barium	75-125	1051.8000		53.5000	B	1000.00	99.8		P
Beryllium									P
Cadmium	75-125	456.3000		2.7000	U	500.00	91.3		NR
Calcium									P
Chromium	75-125	943.2000		6.0000	U	1000.00	94.3		NR
Cobalt									P
Copper									NR
Iron									NR
Lead	75-125	930.0000		28.8000	U	1000.00	93.0		NR
Magnesium									P
Manganese									NR
Mercury	75-125	0.9700		0.2000	U	1.00	97.0		NR
Nickel									CV
Potassium									NR
Selenium	75-125	442.2000		65.7000	U	500.00	88.4		NR
Silver	75-125	1350.0000		20.0000		1000.00	133.0	N	P
Sodium									A
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR
									NR

Comments:

H2M LABS, INC. U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

POOLSWA

Lab Name: H2M LABS, INC. Contract: TCLP METAL

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: TGLE01

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

H2M LABS INC

WET CHEM Q.C. SUMMARY

CLIENT ID NO. W. POOL SHALLOW .

LAB NO. 9218715 DATE RECEIVED 6/9/92 .

UNITS MG/KG * = UG/KG MATRIX WATER .

ANALYTE	BLANK	SPIKED SAMPLE RESULT	SPIKE ADDED	SAMPLE RESULT	PERCENT RECOVERY	INITIAL SAMPLE RESULT	DUPLICATE SAMPLE RESULT	RPD	H2M LAB. NO. OF SAMPLE USED FOR MS/MSD
SULFIDE	<0.5	33.8	59.1	228	-328.6	228	-	-	9218715
CYANIDE*	<5.0	22.8	25.0	<5.3	91.2	<5.3	-	-	9218715

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H2M LABS, INC.

9. **BLANK SUMMARY DATA AND RESULTS**
   - 9.1 TCL AND TCLP VOLATILES
   - 9.2 TCL AND TCLP SEMI-VOLATILES
   - 9.3 TCLP PESTICIDES/PCBS
   - 9.4 TCLP HERBICIDES
   - 9.5 TCL AND TCLP METALS
   - 9.6 REACTIVITY, CORROSIVITY, FLASHPOINT

4A

VOLATILE METHOD BLANK SUMMARY

NYSDEC SAMPLE NO.

VBLK15

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Lab File ID: >P9246 Lab Sample ID: ~~VBLK5/15/92~~ VBlK6/15/92 JU 6/23

Date Analyzed: 06/15/92 Time Analyzed: 11:01

GC Column: RTX-5 ID:0.53 (mm) Heated Purge: (Y)

Instrument ID:7003C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS,MSD AND MSB

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	MSB15	MSB6/15/92	>P9247	11:27
02	E-POOL DEEP MS	9218719MS	>P9255	15:13
03	E-POOL DEEP MSD	9218719MS	>P9256	15:41
04	W-POOL DEEP	9218720	>P9257	16:08
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COMMENTS:

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4A
VOLATILE METHOD BLANK SUMMARY

NYSDEC SAMPLE NO.

VBLK16

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Lab File ID: >P9267 Lab Sample ID: ~~VBLK5/16/92~~ VBlK 6/16/92 JJ 6/23

Date Analyzed: 06/16/92 Time Analyzed: 09:18

GC Column: RTX-5 ID:0.53 (mm) Heated Purge: (N)

Instrument ID:7003C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS,MSD AND MSB

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	FIELDBLANK	9218721	>P9269	10:17
02				
03				
04				
05				
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COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

NYSDEC SAMPLE NO.

VBLK16(SOIL)

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Lab File ID: >P9272 Lab Sample ID: ~~VBLK5/16/92~~ VBIK 6/16/92 JV 6/23

Date Analyzed: 06/16/92 Time Analyzed: 11:53

GC Column: RTX-5 ID:0.53 (mm) Heated Purge: (Y)

Instrument ID:7003C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS,MSD AND MSB

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	E-POOL DEEP	9218719	>P9273	12:35
02				
03				
04				
05				
06				
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COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

NYSDEC SAMPLE NO.

VBLK17

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Lab File ID: >P9293 Lab Sample ID: ~~VBLK5/17/92~~ VBlK6/17/92 JV 6/23

Date Analyzed: 06/17/92 Time Analyzed: 14:43

GC Column: RTX-5 ID:0.53 (mm) Heated Purge: (N)

Instrument ID:7003C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS,MSD AND MSB

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	MSB17	MSB6/17/92	>P9304	19:34
02	VTCLPBLANK16	TCLPBLK6/16	>P9306	20:24
03	W-POOL SHALLOW	9218715	>P9307	20:50
04	W-POOL SHALLOWMS	9218715MS	>P9308	21:15
05	W-POOL SHALLOMSD	9218715MSD	>P9309	21:40
06	E-POOL SHALLOW	9218716	>P9310	22:05
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COMMENTS:

page of

4A

VOLATILE METHOD BLANK SUMMARY

NYSDEC SAMPLE NO.

VBLK18

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Lab File ID: >P9321 Lab Sample ID: VBLK6/18/92

Date Analyzed: 06/18/92 Time Analyzed: 12:52

GC Column: RTX-5 ID:0.53 (mm) Heated Purge: (N)

Instrument ID:7003C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS,MSD AND MSB

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	E-POOL SHALLOWDL	9218716DL	>P9326	15:43
02	EAST DRYWELL	9218717	>P9327	16:12
03	EAST DRYWELLSPIK	9218717SPIK	>P9328	16:40
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COMMENTS:

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK15

Lab Name: H2M   Contract: NYSDEC

Lab Code: H2M   Case No.: .   SAS No.: .   SDG No.: GLE001

Matrix: (soil/water) SOIL   Lab Sample ID: VBLK6/15/92

Sample wt/vol: 5 (g/mL) G   Lab File ID: >P9246

Level: (low/med) LOW   Date Received:

% Moisture: not dec..   Date Analyzed: 6/15/92

GC Column: RTX-5 ID 0.53 (mm)   Dilution Factor: 1

Soil Extract Volume:__________(ul)   Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene_(total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
133-02-7	Xylene (total)	10.	U

FORM 1-CLP-VOA

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK15

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) SOIL Lab Sample ID: VBLK6/15/92

Sample wt/vol: 5 (g/mL) G Lab File ID: ~~>P8946~~ >P9246 JL 6/25

Level: (low/med) LOW Date Received:

% Moisture: not dec.. Date Analyzed: 6/15/92

GC Column: RTX-5 ID: 0.53 (mm) Dilution Factor: 1.00000

Soil Extract Volume:_______(ul) Soil Aliquot Volume:_______(UL)

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	None Found			
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK16

Lab Name:H2M   Contract:NYSDEC

Lab Code:H2M   Case No.:.   SAS No.:.   SDG No.:GLE001

Matrix: (soil/water) ~~SOIL~~ WATER JV 6/19   Lab Sample ID: VBLK6/16/92

Sample wt/vol: 5 (g/mL) ML   Lab File ID: >P9267

Level: (low/med) LOW   Date Received:

% Moisture: not dec..   Date Analyzed: 6/16/92

GC Column: RTX-5 ID 0.53 (mm)   Dilution Factor: 1

Soil Extract Volume:__________(ul)   Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene_(total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
133-02-7	Xylene (total)	10.	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK16

Lab Name: H2M   Contract: NYSDEC

Lab Code: H2M   Case No.: .   SAS No.: .   SDG No.: GLE001

Matrix: (soil/water) WATER   Lab Sample ID: VBLK6/16/92

Sample wt/vol: 5 (g/mL) ML   Lab File ID: >P9267

Level: (low/med) LOW   Date Received:

% Moisture: not dec..   Date Analyzed: 6/16/92

GC Column: RTX-5 ID: 0.53 (mm)   Dilution Factor: 1.00000

Soil Extract Volume:_______(ul)   Soil Aliquot Volume:________(UL)

CONCENTRATION UNITS:
Number TICs found: 0   (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	None Found			
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FORM I-CLP-VOA-TIC

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK16(SOIL)

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) SOIL Lab Sample ID: VBLK6/16/92(S)

Sample wt/vol: 5 (g/mL) G Lab File ID: >P9272

Level: (low/med) LOW Date Received:

% Moisture: not dec.. Date Analyzed: 6/17/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:__________(ul) Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene_(total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
133-02-7	Xylene (total)	10.	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK16 (SOIL)

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) SOIL Lab Sample ID: VBLK6/16/92(S)

Sample wt/vol: 5 (g/mL) G Lab File ID: >P9272

Level: (low/med) LOW Date Received:

% Moisture: not dec.. Date Analyzed: 6/16/92

GC Column: RTX-5 ID: 0.53 (mm) Dilution Factor: 1.00000

Soil Extract Volume:_______(ul) Soil Aliquot Volume:________(UL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	None Found			
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S 0114

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VTCLP BLANK16

Lab Name: H2M Contract: NYSDEC

Lab Code: H2M Case No.: . SAS No.: . SDG No.: GLE001

Matrix: (soil/water) WATER Lab Sample ID: VTCLPBLK6/16/92

Sample wt/vol: 5 (g/mL) ML Lab File ID: >P9306

Level: (low/med) LOW Date Received:

% Moisture: not dec.. Date Analyzed: 6/17/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:__________(ul) Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4	Vinyl Chloride	10.	U
75-35-4	1,1-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
56-23-5	Carbon Tetrachloride	10.	U
79-01-6	Trichloroethene	10.	U
71-43-2	Benzene	3.	J
127-18-4	Tetrachloroethene	10.	U
108-90-7	Chlorobenzene	10.	U

FORM 1-CLP-VOA

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S 0115

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK18

Lab Name:H2M Contract:NYSDEC

Lab Code:H2M Case No.:. SAS No.:. SDG No.:GLE001

Matrix: (soil/water) WATER Lab Sample ID: VBLK6/18/92

Sample wt/vol: 5 (g/mL) ML Lab File ID: >P9321

Level: (low/med) LOW Date Received:

% Moisture: not dec.. Date Analyzed: 6/18/92

GC Column: RTX-5 ID 0.53 (mm) Dilution Factor: 1

Soil Extract Volume:__________(ul) Soil Aliquot Volume:__________(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene_(total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	3.	J
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
133-02-7	Xylene (total)	10.	U

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4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK 174

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID: >E6535 Lab Sample ID: SBLK 174

Instrument ID: 5970B Date Extracted: 6/13/92

Matrix: (soil/water) WATER Date Analyzed: 6/16/92

Level: (low.med) LOW Time Analyzed: 22:41

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	FIELD BLANK	9218721	>E6526	6/16/92
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COMMENTS:

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4B EPA SAMPLE NO.

SEMIVOLATILE METHOD BLANK SUMMARY

SBLK (6/14)

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID: >E6579 Lab Sample ID: SBLK (6/14)

Instrument ID: 5970B Date Extracted: 6/14/92

Matrix: (soil/water) WATER Date Analyzed: 6/22/92

Level: (low.med) LOW Time Analyzed: 18:08

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MSB (6/14)	MSB (6/14)	>E6579	6/22/92
02	W POOL SHALLOW	9218715	>E6581	6/22/92
03	W POOL SHALLOW MS	9218715 MS	>E6582	6/22/92
04	W POOL SHALLOW MSD	9218715 MSD	>E6583	6/22/92
05	E POOL SHALLOW	9218716	>E6584	6/22/92
06	EAST DRYWELL	9218717	>E6585	6/22/92
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COMMENTS:

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4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK 176

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID: >E6542 Lab Sample ID: SBLK 176

Instrument ID: 5970B Date Extracted: 6/14/92

Matrix: (soil/water) SOIL Date Analyzed: 6/18/92

Level: (low.med) LOW Time Analyzed: 17:50

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MSB (6/14)	MSB (6/14)	>E6543	6/18/92
02	E POOL DEEP MS	9218719 MS	>E6545	6/18/92
03	E POOL DEEP MSD	9218719 MSD	>E6546	6/18/92
04	W POOL SHALLOW	9218720	>E6547	6/18/92
05	E POOL DEEP	9218719	>E6557	6/20/92
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COMMENTS:

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK 174

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) WATER Lab Sample ID: SBLK 174

Sample wt/vol: 1000 (g/mL) mL Lab File ID: >E6535

Level: (low/med) LOW Date Received: -------

% Moisture: -- decanted: (Y/N) -- Date Extracted: 6/13/92

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 6/16/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) N pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10.	U
111-44-4	bis(2-Chloroethyl)Ether	10.	U
95-57-8	2-Chlorophenol	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U
95-48-7	2-Methylphenol	10.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10.	U
106-44-5	4-Methylphenol	10.	U
621-64-7	N-Nitroso-Di-n-propylamine	10.	U
67-72-1	Hexachloroethane	10.	U
98-95-3	Nitrobenzene	10.	U
78-59-1	Isophorone	10.	U
88-75-5	2-Nitrophenol	10.	U
105-67-9	2,4-Dimethylphenol	10.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U
120-83-2	2,4-Dichlorophenol	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U
91-20-3	Naphthalene	10.	U
106-47-8	4-Chloroaniline	10.	U
87-68-3	Hexachlorobutadiene	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U
91-57-6	2-Methylnaphthalene	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U
88-06-2	2,4,6-Trichlorophenol	10.	U
95-95-4	2,4,5-Trichlorophenol	25.	U
91-58-7	2-Chloronaphthalene	10.	U
88-74-4	2-Nitroaniline	25.	U
131-11-3	Dimethylphthalate	10.	U
208-96-8	Acenaphthylene	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U
99-09-2	3-Nitroaniline	25.	U
83-32-9	Acenaphthene	10.	U

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H2M LABS, INC.

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK 174

Lab Name: H2M LABS INC.   Contract: NYSDEC

Lab Code: H2M   Case No.: GLE   SAS No.: -----   SDG No.: 001

Matrix: (soil/water) WATER   Lab Sample ID: SBLK 174

Sample wt/vol: 1000 (g/mL) mL   Lab File ID: >E6535

Level: (low/med) LOW   Date Received: -------

% Moisture: --   decanted: (Y/N) --   Date Extracted: 6/13/92

Concentrated Extract Volume: 2000 (uL)   Date Analyzed: 6/16/92

Injection Volume: 2 (uL)   Dilution Factor: 1.00000

GPC Cleanup: (Y/N) N   pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	25.	U
100-02-7	4-Nitrophenol	25.	U
132-64-9	Dibenzofuran	10.	U
121-14-2	2,4-Dinitrotoluene	10.	U
84-66-2	Diethylphthalate	10.	U
7005-72-3	4-Chlorophenyl-phenylether	10.	U
86-73-7	Fluorene	10.	U
100-01-6	4-Nitroaniline	25.	U
534-52-1	4,6-Dinitro-2-methylphenol	25.	U
86-30-6	N-Nitrosodiphenylamine (1)	10.	U
101-55-3	4-Bromophenyl-phenylether	10.	U
118-74-1	Hexachlorobenzene	10.	U
87-86-5	Pentachlorophenol	25.	U
85-01-8	Phenanthrene	10.	U
120-12-7	Anthracene	10.	U
86-74-8	Carbazole	10.	U
84-74-2	Di-n-butylphthalate	10.	U
206-44-0	Fluoranthene	10.	U
129-00-0	Pyrene	10.	U
85-68-7	Butylbenzylphthalate	10.	U
91-94-1	3,3'-Dichlorobenzidine	10.	U
56-55-3	Benzo(a)anthracene	10.	U
218-01-9	Chrysene	10.	U
117-81-7	bis(2-Ethylhexyl)phthalate	7.	JB
117-84-0	Di-n-octylphthalate	10.	U
205-99-2	Benzo(b)fluoranthene	10.	U
207-08-9	Benzo(k)fluoranthene	10.	U
50-32-8	Benzo(a)pyrene	10.	U
193-39-5	Indeno(1,2,3-cd)pyrene	10.	U
53-70-3	Dibenz(a,h)anthracene	10.	U
191-24-2	Benzo(g,h,i)perylene	10.	U

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(1) - Cannot be separated from Diphenylamine

S 0122

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1F

EPA SAMPLE NO.

SBLK 174

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) WATER Lab Sample ID: SBLK 174

Sample wt/vol: 1000 (g/mL) mL Lab File ID: >E6535

Level: (low/med) LOW Date Received: -------

% Moisture: -- decanted: (Y/N) -- Date Extracted: 6/13/92

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 6/16/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) N pH:--

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	5.76	10.	J
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FORM I SV-TIC 3/90

S 0123

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1B EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLK 176

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) SOIL Lab Sample ID: SBLK 176

Sample wt/vol: 30 (g/mL) G Lab File ID: >E6542

Level: (low/med) LOW Date Received: -------

% Moisture: -- decanted: (Y/N) -- Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 6/18/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y pH:--

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	330.	U
111-44-4	bis(2-Chloroethyl)Ether	330.	U
95-57-8	2-Chlorophenol	330.	U
541-73-1	1,3-Dichlorobenzene	330.	U
106-46-7	1,4-Dichlorobenzene	330.	U
95-50-1	1,2-Dichlorobenzene	330.	U
95-48-7	2-Methylphenol	330.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330.	U
106-44-5	4-Methylphenol	330.	U
621-64-7	N-Nitroso-Di-n-propylamine	330.	U
67-72-1	Hexachloroethane	330.	U
98-95-3	Nitrobenzene	330.	U
78-59-1	Isophorone	330.	U
88-75-5	2-Nitrophenol	330.	U
105-67-9	2,4-Dimethylphenol	330.	U
111-91-1	bis(2-Chloroethoxy)methane	330.	U
120-83-2	2,4-Dichlorophenol	330.	U
120-82-1	1,2,4-Trichlorobenzene	330.	U
91-20-3	Naphthalene	330.	U
106-47-8	4-Chloroaniline	330.	U
87-68-3	Hexachlorobutadiene	330.	U
59-50-7	4-Chloro-3-methylphenol	330.	U
91-57-6	2-Methylnaphthalene	330.	U
77-47-4	Hexachlorocyclopentadiene	330.	U
88-06-2	2,4,6-Trichlorophenol	330.	U
95-95-4	2,4,5-Trichlorophenol	830.	U
91-58-7	2-Chloronaphthalene	330.	U
88-74-4	2-Nitroaniline	830.	U
131-11-3	Dimethylphthalate	330.	U
208-96-8	Acenaphthylene	330.	U
606-20-2	2,6-Dinitrotoluene	330.	U
99-09-2	3-Nitroaniline	830.	U
83-32-9	Acenaphthene	330.	U

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S 0124

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK 176

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Matrix: (soil/water) SOIL Lab Sample ID: SBLK 176

Sample wt/vol: 30 (g/mL) G Lab File ID: >E6542

Level: (low/med) LOW Date Received: -------

% Moisture: -- decanted: (Y/N) -- Date Extracted: 6/14/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 6/18/92

Injection Volume: 2 (uL) Dilution Factor: 1.00000

GPC Cleanup: (Y/N) Y pH:--

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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~~S 0126~~

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ENVIRONMENTAL and INDUSTRIAL ANALYTICAL LABORATORY

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLK-1

Lab Name: H2M LABS, INC. Contract: ________
Lab Code: ________ Case No: ________ SAS No.: ________ SDG No. ________
Lab Sample ID: B-182 Lab File ID: AC12628/BC12628
Matrix:(Soil/Water) WATER Extraction:(SepF/Cont/Sonc) SepF
Sulfur Cleanup: (Y/N) N Date Extracted: 6-15-92
Date Analyzed (1): 6-21-92 Date Analyzed (2): 6-21-92
Time Analyzed (1): 12:04 Time Analyzed (2): 12:04
Instrument ID (1): PEAUTOSYSTEM Instrument ID (2): PEAUTOSYSTEM
GC Column (1): RTX-5 ID: 0.53 (mm) GC Column (2): RTX-35 ID: 0.53 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	MSB 6-15	MSB 6-15	6-21-92	6-21-92
02	MSBD 6-15	MSBD 6-15	6-21-92	6-21-92
03	W.POOL SHALLOW	9218715	6-21-92	6-21-92
04	W. POOL SHALLOW MS	9218715 MS	6-21-92	6-21-92
05	W. POOL SHALLOW MSD	9218715 MSD	6-21-92	6-21-92
06	EAST POOL SHALLOW	9218716	6-21-92	6-21-92
07	EAST DRY WELL	9218717	6-21-92	6-21-92
08				

Comments: ________

PAGE 1 OF 1

FORM IV - PEST

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S 0127

H2M LABS, INC.

PESTICIDE ORGANICS ANALYSIS DATA SHEET
TCLP

SAMPLE NO.

PBLK-1

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: ____ Case No: GLE01 SAS No: ____ SDG No: GLE001

Matrix: (soil/water) Water Lab Sample ID: B-182

Sample wt/vol: 100 (g/mL) ml Lab File ID: AC12628/BC12628

Level: (low/med) Low Date Received: ____

% Moisture: not dec. - dec. " - Date TCLP Extracted: 6/14/92

Extraction: (SepF/Cont/Sonc) Sepf Date Extracted: 6/15/92

GPC Cleanup: (Y/N) N pH 7.0 Date Analyzed: 6/21/92

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/l or ug/kg) ug/L	Q
58-89-9	gamma-BHC (Lindane)	0.7	U
76-44-8	Heptachlor	0.7	U
1024-57-3	Heptachlor epoxide	0.6	U
72-20-8	Endrin	0.7	U
72-43-5	Methoxychlor	6.0	U
57-74-9	Chlordane	10	U
8001-35-2	Toxaphene	50	U

FORM I T-PEST

H2M LABS, INC.

TCLP
HERBICIDE METHOD BLANK SUMMARY

Lab Name: H2M LABS, INC. Contract: ______
Lab Code: ______ Case No: GLE01 SAS No: ______ SDG No: GLE001
Lab Sample ID: TB 6/15 Lab File ID: HERB-09
Matrix: (Soil/Water) Water Level: (Low/Med): Low
Date Extracted: 6/15/92 Extraction: (SepF/Cont/Sonc) SepF
Date Analyzed (1): 6/19/92 Date Analyzed (2): ______
Time Analyzed (1): 13:43 Time Analyzed (2): ______
Instrument ID (1): TRACOR 550 Instrument ID (2): ______
GC Column ID (1): SP-2250/2401 GC Column ID (2): ______

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	W. Pool Shallow	9218715	6/19/92	
02	W. Pool Shallow MS	9218715 MS	6/19/92	
03	W. Pool Shallow MSD	9218715 MSD	6/19/92	
04	E. Pool Shallow	9218716	6/19/92	
05	East Dry Well	9218717	6/19/92	
06	MSB 6/15	MSB 6/15	6/19/92	
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Comments: ______

PAGE ___ OF ___

FORM IV HERB

H2M LABS, INC.

TCLP
HERBICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
TB-6-15-92

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: ____ Case No: ____ SAS No: ____ SDG No: GLE001

Matrix: (soil/water) Water Lab Sample ID: TB-6-15-92

Sample wt/vol: 100 (g/ml) ml Lab File ID: HERB-09

Level: (low/med) Low Date Received: ____

% Moisture: not dec. ____ dec. ____ Date Extracted: 6/15/92

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6/19/92

GPC Cleanup: (Y/N) N pH ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
94-75-7	2,4-D	3	U
93-72-1	2,4,5-TP (SILVEX)	1	U

FORM I HERB

182

S 0130

H2M LABS, INC.

U.S. EPA - CLP

3
BLANKS

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	20.0	B	25.6	B	12.5	U	12.5	U	111.800	B	P
Antimony	21.4	U	21.4	U	21.4	U	21.4	U	21.400	U	P
Arsenic	1.8	B	1.6	U	1.6	U	1.6	U	1.600	U	F
Barium	6.8	U	6.8	U	6.8	U	6.8	U	6.800	U	P
Beryllium	0.5	U	0.8	B	0.6	B	0.6	B	0.500	U	P
Cadmium	5.0	U	5.0	U	5.0	U			5.000	U	A
Calcium	21.5	U	21.5	U	21.5	U	21.5	U	111.500	B	P
Chromium	6.0	U	6.0	U	6.0	U	6.0	U	6.000	U	P
Cobalt	5.5	U	5.5	U	5.5	U	5.5	U	5.500	U	P
Copper	1.8	U	2.2	B	1.8	U	1.8	U	1.800	U	P
Iron	9.5	U	9.5	U	9.5	U	9.5	U	66.100	B	P
Lead	1.8	U	1.8	U	1.8	U	1.8	U	1.800	U	F
Magnesium	-33.4	B	21.6	U	21.6	U	21.6	U	94.000	B	P
Manganese	2.0	U	2.1	B	2.8	B	2.0	U	2.000	U	P
Mercury	0.2	U	0.2	U	0.2	U			0.200	U	CV
Nickel	12.8	U	13.1	B	12.8	U	12.8	U	12.800	U	P
Potassium	23.5	U	23.5	U	23.5	U	23.5	U	29.100	B	P
Selenium	1.5	U	1.5	U	1.5	U	1.5	U	1.500	U	F
Silver	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	A
Sodium	-17.4	B	17.3	U	17.3	U	17.3	U	128.100	B	P
Thallium	1.0	U	2.4	B	4.3	B			1.000	B	F
Vanadium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Zinc	-1.6	B	0.9	U	0.9	U	0.9	U	6.900	B	P
Cyanide	10.0	U	10.0	U	10.0	U					C

H2M LABS, INC.

U.S. EPA - CLP

3
BLANKS

Lab Name: H2M LABS, INC. Contract:

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: GLE001

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum									20.460	B	P
Antimony									4.280	U	P
Arsenic									0.320	U	F
Barium									1.360	U	P
Beryllium									0.100	U	P
Cadmium									1.000	U	A
Calcium									4.440	B	P
Chromium									1.200	U	P
Cobalt									1.100	U	P
Copper									0.360	U	P
Iron									12.740	B	P
Lead									0.360	U	F
Magnesium									4.320	U	P
Manganese									0.720	B	P
Mercury									0.100	U	CV
Nickel									2.560	U	P
Potassium									6.280	B	P
Selenium									0.300	U	F
Silver									2.000	U	A
Sodium									9.680	B	P
Thallium	1.0	U	-1.7	B					0.200	U	F
Vanadium									1.000	U	P
Zinc									0.320	B	P
Cyanide									1.000	U	C

H2M LABS, INC. U.S. EPA - CLP

3
BLANKS

Lab Name: H2M LABS, INC. Contract: TCLP METAL

Lab Code: H2MLAB Case No.: SAS No.: SDG No.: TGLE01

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum											
Antimony											
Arsenic	45.4	U	45.4	U	45.4	U			45.4	U	P
Barium	6.8	U	6.8	U	6.8	U			6.8	U	P
Beryllium											
Cadmium	2.7	U	3.3	B	2.7	U			2.7	U	P
Calcium											
Chromium	6.0	U	6.0	U	6.0	U			6.0	U	P
Cobalt											
Copper											
Iron											
Lead	28.8	U	28.8	U	28.8	U			28.8	U	P
Magnesium											
Manganese											
Mercury	0.2	U	0.2	U	0.2	U			0.2	U	CV
Nickel											
Potassium											
Selenium	65.7	U	65.7	U	65.7	U			65.7	U	P
Silver	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	A
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

H2M LABS INC

WET CHEM Q.C. SUMMARY

CLIENT ID NO. W. POOL SHALLOW

LAB NO. 9218715 DATE RECEIVED 6/9/92

UNITS MG/KG * = UG/KG MATRIX WATER

ANALYTE	BLANK	SPIKED SAMPLE RESULT	SPIKE ADDED	SAMPLE RESULT	PERCENT RECOVERY	INITIAL SAMPLE RESULT	DUPLICATE SAMPLE RESULT	RPD	H2M LAB. NO. OF SAMPLE USED FOR MS/MSD
SULFIDE	<0.5	33.8	59.1	228	-328.6	228	-	-	9218715
CYANIDE*	<5.0	22.8	25.0	<5.3	91.2	<5.3	-	-	9218715

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H2M LABS, INC.

10. INTERNAL STANDARD AREA DATA
    10.1 TCL AND TCLP VOLATILES
    10.2 TCL AND TCLP SEMI-VOLATILES

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M Labs Inc   Contract: NYSDEC
Lab Code: ______   Case No.: ______   SAS No.: ______   SDG No.: 6LE001
Lab File ID (Standard): P9240   Date Analyzed: 6/15/92
Instrument ID: 7003C   Time analyzed: 0812
GC Column: RTX-5   ID: 0.53 (mm)   Heated Purge: (Y/N) Y

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	16230	08.57	69633	10.29	53466	15.30
	UPPER LIMIT	32460	09:07	139266	10.79	106932	15.80
	LOWER LIMIT	8115	08.07	34816	9.79	26733	14.80
	NYSDEC SAMPLE NO.						
01	VBLK15	14021	0857	62472	1029	47269	1529
02	MSB15	15047	0857	62664	1029	48028	1531
03	EPool DEEPMS	10348	0856	43344	1029	28945	1530
04	EPOOL DEEPMSD	10961	0855	44699	1027	30688	1530
05	WPOOL DEEP	12963	0858	54532	1030	42473	1530
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IS1 (BCM) = Bromochlormethane
IS2 (DFB) = 1,4-Difluoromethane
IS3 (CBZ) = Chlorobenzene-d_5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

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VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M labs, Inc Contract: NYSDEC
Lab Code: ____ Case No.: ____ SAS No.: ____ SDG No.: ____
Lab File ID (Standard): P9266 Date Analyzed: 6/16/92
Instrument ID: 70036 Time analyzed: 0840
GC Column: RTX-5 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	13912	858	67999	1029	53121	1531
	UPPER LIMIT	27824	9.08	135998	10.79	106242	15.81
	LOWER LIMIT	6956	8.08	34000	9.79	26560	14.81
	NYSDEC SAMPLE NO.						
01	VBIK16	12713	0856	64548	1029	49417	1530
02	FIELD BLANK	12107	0855	61551	1028	46141	1530
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IS1 (BCM) = Bromochlormethane
IS2 (DFB) = 1,4-Difluoromethane
IS3 (CBZ) = Chlorobenzene-d_5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

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VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M Labs, Inc Contract: NYSDEC

Lab Code:____ Case No.:____ SAS No.:____ SDG No.:____

Lab File ID (Standard): P9271 Date Analyzed: 6/16/92

Instrument ID: 7603C Time analyzed: 1126

GC Column: RTX-5 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	14359	0856	63316	1029	50349	1530
	UPPER LIMIT	28718	09.06	126632	10.79	100698	15.80
	LOWER LIMIT	7179	08.06	31658	9.79	25174	14.80
	NYSDEC SAMPLE NO.						
01	VBIK16(soil)	12994	0858	60157	1030	46834	1531
02	EPOOL DEEP	10874	0855	56124	1028	39583	1529
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IS1 (BCM) = Bromochlormethane
IS2 (DFB) = 1,4-Difluoromethane
IS3 (CBZ) = Chlorobenzene-d_5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

\# Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

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VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M Labs, Inc Contract: NYSDEC

Lab Code: ______ Case No.: ______ SAS No.: ______ SDG No.: ______

Lab File ID (Standard): D9291 Date Analyzed: 6/17/92

Instrument ID: 7003C Time analyzed: 1256

GC Column: RTX-5 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	12398	0856	63037	1028	49171	1530
	UPPER LIMIT	24796	09.06	126074	10.78	98342	15.80
	LOWER LIMIT	6199	08.06	31518	9.78	24586	14.80
	NYSDEC SAMPLE NO.						
01	VBLK 17	12309	0858	58849	1029	43956	1530
02	MSB 17	13932	0855	54387	1028	45035	1528
03	VTCIP BLANK 6/16/92	11771	0857	51705	1030	40185	1531
04	W POOL SHALLOW	11817	0855	51769	1028	38710	1528
05	W POOL SHALLOW MS	12260	0856	53041	1029	39317	1529
06	W POOL SHALLOW MSD	12240	0857	54453	1030	41178	1528
07	E POOL SHALLOW	11244	0856	45202	1040	38207	1531
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IS1 (BCM) = Bromochlormethane
IS2 (DFB) = 1,4-Difluoromethane
IS3 (CBZ) = Chlorobenzene-d_5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

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8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M Labs, Inc   Contract : NYSDEC

Lab Code: ______ Case No.: ______ SAS No.: ______ SDG No.: ______

Lab File ID (Standard): P9317   Date Analyzed: 6/18/92

Instrument ID: 7003 C   Time analyzed: 1024

GC Column: DTX-5 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	18006	0855	84564	1029	60923	1529
	UPPER LIMIT	36012	09.05	169128	10.79	121846	15.79
	LOWER LIMIT	9003	08.05	42282	9.79	30462	14.79
	NYSDEC SAMPLE NO.						
01	VBLK18	15008	0860	70108	1031	51564	1530
02	EPC01 SPALLOWDL	12204	0858	56001	1029	42857	1530
03	EAST DRYWELL	13633	0858	59782	1031	45609	1530
04	EASTDRYWELL SPIKE	14121	0859	63192	1030	47961	1530
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IS1 (BCM) = Bromochlormethane
IS2 (DFB) = 1,4-Difluoromethane
IS3 (CBZ) = Chlorobenzene-d_5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

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H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

8E
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID (Standard): >E6523 Date Analyzed: 6/16/92

Instrument ID: 70 2 Time Analyzed: 12:29

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	47037.	9.96	189679.	13.17	129272.	17.65
	UPPER LIMIT	94074.	10.46	379358.	13.67	258544.	18.15
	LOWER LIMIT	23519.	9.46	94840.	12.67	64636.	17.15
	EPA SAMPLE NO.						
01	FIELD BLANK	42435.	9.96	159830.	13.15	108015.	17.64
02	SBLK 174	46590.	9.95	180936.	13.14	122970.	17.63
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d8

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID (Standard): >E6523 Date Analyzed: 6/16/92

Instrument ID: 70 2 Time Analyzed: 12:29

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	270188.	21.38	221375.	28.16	255332.	31.69
	UPPER LIMIT	540376.	21.88	442750.	28.66	510664.	32.19
	LOWER LIMIT	135094.	20.88	110688.	27.66	127666.	31.19
	EPA SAMPLE NO.		"				
01	FIELD BLANK	230577.	21.37	225967.	28.13	214322.	31.66
02	SBLK 174	257094.	21.35	241236.	28.12	150835.	31.62
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

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H2M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

3E

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID (Standard): >E6540 Date Analyzed: 6/18/92

Instrument ID: 70 2 Time Analyzed: 16:02

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	47353.	9.90	194863.	13.10	135020.	17.58
	UPPER LIMIT	94706.	10.40	389726.	13.60	270040.	18.08
	LOWER LIMIT	23676.	9.40	97432.	12.60	67510.	17.08
	EPA SAMPLE NO.						
01	SBLK 176	43864.	9.92	172112.	13.11	111376.	17.59
02	MSB (6/14)	41806.	9.91	165947.	13.09	110164.	17.57
03	EPOOLDEEPMS	47412.	9.89	181955.	13.08	120725.	17.56
04	EPOOLDEEPMSD	44690.	9.89	174129.	13.08	113776.	17.56
05	W.POOL SHALL	47413.	9.89	182631.	13.08	120714.	17.56
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d8

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID (Standard): >E6540 Date Analyzed: 6/18/92

Instrument ID: 70 2 Time Analyzed: 16:02

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	309920.	21.30	282292.	28.07	324529.	31.57
	UPPER LIMIT	619840.	21.80	564584.	28.57	649058.	32.07
	LOWER LIMIT	154960.	20.80	141146.	27.57	162264.	31.07
	EPA SAMPLE NO.						
01	SBLK 176	241213.	21.31	260861.	28.06	230968.	31.55
02	MSB (6/14)	235079.	21.29	234260.	28.05	218590.	31.53
03	EPOOLDEEPMS	257444.	21.29	264741.	28.03	250977.	31.53
04	EPOOLDEEPMSD	238106.	21.28	242659.	28.03	226694.	31.52
05	W.POOL SHALL	254709.	21.27	257164.	28.03	243132.	31.53
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

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H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

8E

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID (Standard): >E6556 Date Analyzed: 6/20/92

Instrument ID: 70 2 Time Analyzed: 13:35

		IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT
	12 HOUR STD	75411.	9.91	306314.	13.10	188394.	17.57
	UPPER LIMIT	150822.	10.41	612628.	13.60	376788.	18.07
	LOWER LIMIT	37705.	9.41	153157.	12.60	94197.	17.07
	EPA SAMPLE NO.						
01	E.POOL DEEP	58781.	9.90	229106.	13.08	139901.	17.56
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d8

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

H2M LABS, INC.
575 Broad Hollow Road, Melville, N.Y. 11747
(516) 694-3040 FAX: (516) 694-4122

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: H2M LABS INC. Contract: NYSDEC

Lab Code: H2M Case No.: GLE SAS No.: ----- SDG No.: 001

Lab File ID (Standard): >E6556 Date Analyzed: 6/20/92

Instrument ID: 70 2 Time Analyzed: 13:35

	IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
12 HOUR STD	391115.	21.29	286399.	28.06	329171.	31.55
UPPER LIMIT	782230.	21.79	572798.	28.56	658342.	32.05
LOWER LIMIT	195557.	20.79	143199.	27.56	164585.	31.05
EPA SAMPLE NO.						
01 E.POOL DEEP	282572.	21.27	248352.	28.02	234567.	31.50
02						
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

REFERENCE NO. 27

REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WORK PLAN
DRAFT EDITION

MAGNUSONIC DEVICES, INC.
290 Duffy Avenue
Hicksville, New York

NYSDEC Site Code: 1-30-031

Prepared for:

SmithKline Beecham Corp.
709 Swedeland Road
P.O. Box 1539
King of Prussia, PA 19406-0939

December 1992

LIFE
SUPPORT
SCIENCES
INC.

REMEDIAL INVESTIGATION/FEASIBILITY STUDY
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DRAFT EDITION [EDITORIAL]

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LIFE SUPPORT SCIENCES INC.

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1.0 INTRODUCTION

Under contract with the SmithKline Beecham Corp., Life Support Sciences, Inc. has prepared the work plan to complete a Remedial Investigation/Feasibility Study (RI/FS) for the Magnusonic Devices, Inc. site. The Magnusonic Devices, Inc. facility, hereafter referred to as "the site," is located at 290 Duffy Avenue, in Hicksville, New York (see Figure 1.0). The New York State Department of Environmental Conservation (NYSDEC) has designated the site as an Inactive Hazardous Waste Disposal Site (NYSDEC site code #1-30-031). This work plan will be an attachment to the RI/FS Order-On-Consent with the NYSDEC.

In December 1989, a Phase II Environmental Investigation of the site was completed by Richard D. Galli, P.E., P.C. The remedial investigation proposed in this work plan was developed to supplement the findings of the completed Phase II Environmental Investigation.

1.1 Purpose and Objectives

The RI/FS work plan defines the scope and objectives of the study. The primary objectives of this work plan are to present the methodology that will be used to characterize any environmental hazards, to better define the nature and extent of previously identified soil and groundwater contamination, and to evaluate potential remediation alternatives. The specific project objectives are as follows:

- To present the procedures and protocols that will be used to investigate soil and groundwater conditions.

- To ascertain the character and impact of previous site activities upon the soil quality in the back parking area and groundwater quality in the hydrogeological unit that underlies the Upper Glacial Aquifer.

- To identify the criteria that will be used to evaluate the need for and feasibility of remedial alternatives.

- To present the Quality Assurance/Quality Control (QA/QC) procedures that will be implemented to maintain project integrity.

- To inform workers of health and safety procedures to preclude, or reduce the risk of, personal injury during the site activities.

1.2 Site History

Based on historical records, the site apparently was undeveloped land prior to the construction of the existing structure. The single-story warehouse was built in the 1960's by Mr. Milton S. Stevens. Between 1962 and the early 1970's, Mr. Stevens operated a direct mail business at the site. In 1977, he leased the property to Magnusonic Devices, Inc.; it is the only industrial facility to conduct manufacturing operations within the site.

Magnusonic Devices, Inc. manufactured computer tape recording heads, an operation which generated both hazardous and nonhazardous wastes. Manufacturing processes conducted by Magnusonic Devices, Inc. consisted of: 1) assembly of tape head housings, 2) photographic etching of thin sheet metal (i.e., brass and copper) laminates in the fabrication of miniature, coil-wound cores, 3) copper and chrome electroplating of tape heads for magnetic shielding and wear resistance, 4) assembly operations, such as coil winding, laminating, soldering, potting, lapping and polishing, and 5) various electrical and mechanical inspection operations to maintain product quality. After Magnusonic Devices, Inc. ceased operations, hazardous wastes were removed from the site by NYSDEC-licensed transporters.

Magnusonic Devices, Inc. used a physical-chemical treatment system which processed rinse-waters from its plating and chemical milling operations, and discharged the treated wastewaters into two (2) subsurface leaching pools located outside the rear of the building. NYSDEC documents indicate that during the period between 1981-1985, Magnusonic Devices, Inc. discharged concentrations of solvents and metals that exceeded the regulated limits into the two (2) leaching pools located in the back of the facility (see Figure 2.0). Chemicals and compounds allegedly discharged included: nickel, acetone, Freon TF, 1,1,1-trichloroethane, trichloroethylene, methylene chloride, and possibly other organic compounds. In 1986, the facility was connected to the Nassau County Sewer System. The industrial wastewater discharge from the Magnusonic Devices, Inc. did not have a Nassau County Pretreatment Permit.

The wastewater treatment facility was located at the northwest rear corner of the building. A hazardous waste drum storage area, located in a bermed and caged indoor area measuring 15' x 25', was adjacent to the wastewater treatment facility. The floor of this area was formed of a concrete slab, without drains or sumps.

The plating area was located in the east side of the subject building. The floor of the plating room was determined to be contaminated with heavy metals and was disposed of as hazardous waste during closure of the facility. The floor was constructed of concrete and had one (1) drain connected to the east side storm-drain, but the drain was reportedly plugged more than five (5) years before operations ceased. The east-side storm drain was sampled in December of 1989, during the Phase II Environmental Investigation. The associated semi-volatile organics analyses indicated that the soil did not contain concentrations of contaminants that exceeded the NYSDEC's recommended clean-up guidelines.

During the Phase II work plan development in 1988, Richard D. Galli, P.E., P.C. was orally informed by a NYSDEC official that the Nassau County Department of Health (NCDH) had received reports that Magnusonic Devices, Inc. had disposed of assorted materials at the northern rear portion of the property adjacent to the LIRR Right-of-Way. However, this has not been documented in writing or confirmed by field investigation. According to the oral reports, the material was dumped into a shallow pit and subsequently covered with asphalt pavement.

During the soil boring activities in the area of the suspected disposal, material was encountered that was tentatively identified as ferric hydroxide sludge. Laboratory analyses of samples collected in borings beneath the rear parking area indicated elevated pH and elevated concentrations of lead and iron.

Typical hazardous materials/wastes used or generated by Magnusonic Devices, Inc. included the following:

- Ferric Hydroxide Sludge
- Ferric Chloride
- Photographic Developer Solution
- Chrome and Copper Plating Solutions
- Coolants and Hydraulic Oils
- Solvents: 1,1,1 Trichloroethane, Freon TF, Acetone.

1.3 Regulatory Action

In December 1986, International Clinical Laboratories (ICL) purchased the Magnusonic Devices, Inc. site from Mr. Milton Stevens for its own use. Manufacturing at Magnusonic Devices, Inc. ceased shortly thereafter. The interior clean-up of the building was completed by ICL and approved by the NYSDEC Central Office, Albany, New York, in December 1987. In March of 1988, ICL entered into Order-On-Consent #WP-045-83 with the NYSDEC to complete a Phase II Soil and Groundwater Investigation at the site. The purpose of the Phase II Environmental Investigation was to determine the site's hydrogeologic character, as well as to determine the impact of past hazardous materials discharges by Magnusonic Devices, Inc. upon the quality of soil and groundwater. Later in 1988, SmithKline Beckman Corp. acquired ICL, thereby acquiring the site. Subsequently, SmithKline Beckman changed its name to SmithKline Beecham, reflecting a change in ownership. The site has remained unused by the property owners since it was purchased in 1987.

1.4 Prior Reports

The Phase II Environmental Investigation, completed in January 1989, included the installation of six (6) monitoring wells and the completion of ten (10) borings in order to collect groundwater and soil samples for laboratory analysis. The final laboratory data package was available to Richard D. Galli, P.E., P.C. in May 1989. The final Phase II Investigation Report was completed and submitted to the NYSDEC in January, 1990.

In June of 1992, Richard D. Galli, P.E., P.C. conducted a preliminary sampling investigation of the east side storm drain and two leaching pools. The results are presented in the Preliminary Sampling Report. During the negotiations between SmithKline Beecham Corp. and the NYSDEC, the NYSDEC requested that SmithKline Beecham Corp. conduct an Interim Remedial Measure (IRM) at the site. The preliminary sampling investigation was conducted to estimate the requirements of the IRM. The preliminary sampling investigation focused upon the east-side stormdrain and the two (2) rear, industrial leaching pools. The laboratory results associated with the samples collected during the preliminary sampling investigation indicated that a level of benzene, above NYSDEC Groundwater Quality Standards was present in the east-pool. The laboratory results indicated that levels of cadmium and lead, that exceeded the NYSDEC Groundwater Quality Standards were present in the east-side storm drain (see Figure 2.0).

1.5 Elements of the Work Plan

The RI/FS work plan contains the following elements:

Introduction: A general explanation of the purpose of the RI/FS and the associated objectives, as well as site history and discussion of impact studies.

Background and Setting: Physical setting and history are presented, soil and ground water conditions are reviewed, and hydrologic conditions are assessed. Potential pollutant migratory and exposure pathways are presented.

ARAR and Data Needs: Assessment of preliminary Applicable or Relevant and Appropriate Requirements (ARAR's), including location, chemical and action-specific ARAR's.

Remedial Investigation (RI): The RI activities are presented to characterize the nature and distribution of contaminants, and to identify potential environmental threats posed by the site.

Feasibility Study (FS): The FS is presented to evaluate potential remediation alternatives from engineering, public health, environmental, and economic perspectives, for selection of a specific remediation plan.

RI/FS Schedule: The RI/FS schedule presents the estimated completion dates and objectives of the project.

Project Management & Personnel (PMP): The PMP section lists individuals who are responsible for project performance.

Quality Assurance Project Plan (QAPP): The QAPP (Appendix A) contains the QA/QC procedures that will be implemented in all phases of this project in order to meet the data objectives.

Health & Safety Plan (HASP): The HASP (Appendix B) outlines the work procedures that will be implemented to protect worker health during site activities.

Citizen Participation Plan (CPP): The CPP (Appendix C) details the publication and dissemination of information concerning this project that will be made available though a public information source.

Fish and Wildlife Impact Analysis: The Fish and Wildlife Impact Analysis (Appendix D) qualitatively assesses the on-site and local flora and fauna. Potential impacts from on-site contamination upon local vegetation and wildlife are addressed.

2.0 BACKGROUND AND SETTING

The site is located in an area of Hicksville, New York, which consists of industrial and commercial properties to the north, east, and west. Residential lots are located to the south, across Duffy Avenue, and are the nearest non-commercial/non-industrial properties relative to the site (see Figure 1.0).

Site topography is essentially flat, having a slope of less than three percent (3%). No naturally occurring surface water bodies exist within the site area. Site soil consists of the Urban Land (Ur) series. Drainage of the paved, essentially flat, site is directed by grade to drywells located on the property. There is no off-site, point-source discharge of precipitation runoff in the vicinity of the site.

The site is currently vacant and has not been used for any purpose since Magnusonic Devices, Inc. vacated the property in 1987.

2.1 Site Description

The site is a three (3) acre parcel of land that contains a 53,000 sq.ft., concrete-block building. The property that surrounds the building is almost entirely paved, with the exception of a strip of overgrown land located on the northernmost portion of the site, adjacent to the LIRR property. A fence was erected around the site in 1988 to protect trespassers from any potential health hazards.

2.2 Regional Hydrogeology

Geologically, Long Island, New York comprises unconsolidated sediments that were deposited during the Pleistocene and Cretaceous ages. The unconsolidated sediments are approximately eight hundred eighty (880) feet thick in the Hicksville area. The geologic formation overlies the relatively impermeable, crystalline bedrock of the Precambrian age, forming a clastic wedge that thickens in a southward direction. A generalized cross section of Long Island is shown in Figure 2.1, Geologic Cross Section. Figure 2.1 illustrates the three (3) major aquifers of Long Island: the Upper Glacial, Magothy, and the Lloyd Sand Member of the Raritan Formation. These aquifers comprise the hydrogeological units of Long Island.

The Upper Cretaceous sediments include mostly continental material that was deposited unconformably over bedrock, in thickening wedges toward the southeast. The Cretaceous deposits were covered by continental and marine sediments during the Pleistocene.

The Lloyd Sand Member, the earliest Cretaceous deposit in Nassau County, lies unconformably on bedrock and consists primarily of deltaic deposits of fine to coarse sand, interbedded with small to large gravel. Interbeds of silt and clay, and silty and clayey sand are distributed throughout the formation. The Lloyd aquifer is overlain and generally overlapped by the Raritan Clay.

The Lloyd aquifer has moderate horizontal hydraulic conductivity, estimated to be forty (40) ft/day (1.4 x 10^{-2} cm/sec).

However, individual sandy and gravelly beds within the aquifer may have much higher values.

The Raritan Clay consists mainly of deltaic clay and silty clay beds and some interbedded sand. The unit is characterized by its low vertical hydraulic conductivity, (approximately 10^{-3} ft/day or 3×10^{-6} cm/sec), thereby acting as a confining layer between the Lloyd Sand Member and the overlying Magothy aquifer.

The Magothy Formation and Matawan Group comprise the uppermost remaining deposits of the Cretaceous Period in the study area. This unit was eroded from Late Cretaceous to the Pleistocene. The deposits of the Magothy Formation and Matawan Group, like the earlier Cretaceous deposits, are of continental origin and are mostly deltaic and silty sand, with lesser amounts of interbedded clay and silt. The unit commonly has a coarse sand, and in many places, a gravel basal zone that is twenty-five (25) to fifty (50) feet thick.

The Magothy aquifer has been estimated to have an average horizontal hydraulic conductivity of approximately fifty (50) ft/day (1.7×10^{-2} cm/sec), but as in the Lloyd aquifer, individual sandy and gravelly beds may have values four (4) to five (5) times greater.

The glacial deposits of the Pleistocene age, found within the Hicksville area of Nassau County, consist primarily of granular moraine deposits and glacial out-wash. The moraine deposits are typically unsorted, unstratified mixtures of clay, sand, gravel, and boulders. Glacial meltwater carried sand and gravel in broad, coalescing sheets to form an out-wash plain that extends from the terminal moraine, south to the coast; forming the south shore of Long Island.

The Upper Glacial aquifer of Nassau County, within the Hicksville area, consists of sand beds and sand-and-gravel beds which have moderately high porosity. Porosities of thirty (30) to forty (40) percent are common in the Upper Glacial aquifer. These highly permeable formations are capable of yielding large quantities of water to wells. Groundwater flows in a southerly direction within the Hicksville area (see Figure 2.3). Horizontal hydraulic conductivity of glacial out-wash has been estimated to be two hundred seventy (270) ft/day (9.5×10^{-2} cm/sec). Public water supply and other high-capacity wells that are tapped from the out-wash deposits have yielded as much as one thousand five hundred (1,500) gal/min, with specific capacities that range from fifty (50) to sixty (60) gal/min/ft. The hydraulic gradient of the Upper Glacial aquifer corresponds with the slope of the water table. Values of 0.0016 to 0.0021 ft/min. are typical of the South Shore out-wash deposits.

The aquifers of Nassau County are hydraulically interconnected. Layers of clay and silt within an aquifer, or clayey and silty units between aquifers, confine the ground water. However, these units do not completely prevent the vertical movement of water through them.

Typically, the vertical hydraulic conductivity and rates of vertical flow through the Upper Glacial aquifer are greater than those of other hydrogeologic units in Nassau County. The vertical movement of water through the Magothy aquifer is impeded by intercalated lenses and beds of clay and silt. Locally, the vertical movement of water through the aquifer is facilitated by the lateral discontinuity of clay and silt beds. Vertical movement of water through clay and silt beds of the Magothy aquifer is slow. The Lloyd aquifer is effectively confined due to its low hydraulic conductivity and the thickness of the overlying Raritan Clay. Completed studies indicated that the ratio of vertical hydraulic conductivity to horizontal conductivity, in the Upper Glacial aquifer, ranges from 1:10 to 1:24, and the ratio in the Magothy aquifer ranges from 1:30 to 1:60.

Groundwater is recharged naturally by precipitation, which infiltrates through Pleistocene sediments and is eventually received by the Upper Glacial aquifer.

Recharge of underlying aquifers primarily takes place near the center of Long Island, a zone consistent with the regional groundwater divide, through vertical movement of groundwater through the Upper Glacial aquifer. Recharge to the Lloyd aquifer results from downward movement of water, from the Magothy aquifer and the Upper Glacial aquifer, through the Raritan Clay.

Under natural conditions, groundwater within the aquifers of Nassau County generally flows horizontally, away from the zone of recharge. Groundwater flows in a northerly direction to the north of the regional groundwater divide, and in a southerly direction to the south of the divide (see Figure 2.5). Groundwater within the

Upper Glacial aquifer primarily discharges into streams and tidal marshes. Discharges of groundwater from underlying aquifers occurs through vertical movement of groundwater towards several salt water bodies that surround Nassau County. Groundwater flow within both the Magothy and Upper Glacial aquifers, in the Hicksville area, is southerly.

2.3 Site Hydrogeology

The Upper Glacial aquifer underlies the site and consists primarily of sand and gravel mixtures that have porosities of approximately thirty-two (32) percent, and conductivities of approximately seventy-five (75) ft/day. Installation of the six (6) monitoring wells determined that the depth to groundwater varied from fifty-nine (59) to sixty-one (61) feet at the subject site. See Figure 2.4, Groundwater Contour Map. Calculated hydraulic gradients for the Upper Glacial aquifer within the site ranged between 0.0016 and 0.0021 ft./min. Several clay-silt layers were encountered during the installation of groundwater monitoring wells: MW4, MW5, and MW6, but the layers are not considered to be continuous throughout the site.

Hydrogeologic reports concerning the Bethpage-Hicksville-Levittown area of Nassau County indicate that the upper surface of the Magothy aquifer is approximately one hundred twenty (120) feet below grade at the subject site (see Figure 2.1). The actual contact between Pleistocene and Upper Cretaceous deposits, which comprise the sediments of the Magothy aquifer, is poorly defined within the Hicksville area (C. Kilbunne, K. Kulikas, 1980). The Upper Glacial and Magothy aquifers are in direct contact within the subject site area; however, hydraulic interaction between the aquifers may be limited due to the anisotropic character of both aquifers, and the presence of a discontinuous layer that separates the aquifers. Groundwater flows through the Magothy aquifer in a southerly direction beneath the site.

2.4 Potential Migratory Pathways

The site is located in a mixed-use zone within the Town of Oyster Bay, New York. Duffy Avenue abuts the subject site. The north side of Duffy Avenue is industrial and commercial, and the south side is residential. The site is currently vacant, is approximately 95% paved, and is surrounded by a fence. Contaminants found during previous work at the site included heavy metals, and semi-volatile and volatile organic compounds. These chemical groups were found in site soils (metals, semi-volatile and volatile compounds) and groundwater (volatile organic compounds). Elevated levels of metals were found below the asphalt pavement at certain limited areas of the site.

Potential migratory pathways evaluated with respect to the site include atmospheric transport (e.g., airborne dust and volatilization of VOC's), overland flow (e.g., storm water runoff), direct contact (e.g., dermal exposure), and groundwater transport (e.g., leaching). The site is vacant and any contamination resides beneath the asphalt pavement. Therefore, atmospheric transport and overland flow are not considered to be potential migratory pathways. In regard to direct contact, the site is surrounded by a fence and any contamination is capped by the asphalt pavement. The combination of the fence and the capping constitute an effective means to eliminate direct contact as a migratory pathway. Hence, groundwater transport is the migratory pathway considered to be a potential environmental concern.

Groundwater transport represents the most significant migratory pathway, therefore, the proposed field sampling and analysis activities will focus on soil and groundwater quality (refer to Section 4.0 for details pertinent to remedial investigative activities).

2.5 Identification of Operable Units

The site has three (3) discrete areas of potential contamination that are considered to be operable units. These areas are the two (2) leaching pools located north of the building, the east-side storm drain, and the rear of the northern parking area. The operable units are not believed to have interacted or combined to impact subsurface conditions.

2.6 Preliminary Identification of Remedial Action Alternatives

If soil remediation is determined to be necessary, preliminary response alternatives could include the excavation and subsequent disposal of contaminated soil at an appropriate and permitted facility, and employing technologies such as capping the affected horizon with a bentonite clay seal.

Remedial action alternatives for the soil mass, if required, could include soil farming; vitrification of the affected area to produce an inert, non-leaching form; and fixation treatment. Such remedial actions would change the character of the contamination to a non-leaching, more benign form.

If groundwater remediation is determined to be necessary, remedial action alternatives could include technologies such as filtration by a granular activated carbon adsorber (GACA), bioreaction treatments, air stripping, and ultra-violet/ozone treatments.

3.0 PRELIMINARY APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR's), ASSESSMENTS, AND DATA NEEDS

This section identifies the potential regulatory requirements that are considered to be ARAR's for site assessment activities and regulatory data needs. ARAR's focus on the following three (3) elements:

- Specific Locations
- Specific Chemicals
- Specific Actions.

The overall scope of the RI/FS for the Magnusonic Devices, Inc. site is, through a carefully designed and approved work plan, to derive data from various field and laboratory investigations which will supplement the findings of the Phase II Environmental Investigation regarding:

1. The nature and extent of site contamination
2. Source(s) of contamination
3. Characteristics of site geology, hydrogeology, soils, migratory pathways, receptors, potential environmental impacts, and the effects upon human health.

This information will be used to identify, screen, evaluate, and select the remedial alternative(s) that will reduce toxicity, mobility, or volume of any on-site hazardous waste which is present at the site in concentrations that may cause significant impacts to the environment or human health. The selected alternative(s) must be both environmentally sound and cost-effective.

A multi-phased RI/FS will be conducted in accordance with the <u>Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA</u>, October 1988, published by the United States

Environmental Protection Agency (USEPA). The objective of the RI/FS process is to acquire sufficient information to support a logical decision regarding which remedy(s), if any, appears to be the most appropriate for a given site; in this case, the Magnusonic Devices, Inc. site.

3.1 Location-Specific ARAR's

A hazardous waste site's location is a fundamental determinant of its impact on human health and the environment. Location-specific ARAR's are restrictions placed upon the on-site activities, based on the specific site location. An example of a location-specific ARAR is the prohibition of the unrestricted, unpermitted discharge of dredged fill into wetlands.

Location specific regulations and laws include the following:

1. The Federal Resource Conservation and Recovery Act (RCRA) Location Requirements
2. The Endangered Species Act
3. The Fish and Wildlife Act
4. The Coastal Zone Management Act
5. The National Historic Preservation Act
6. The State of New York Wetland Law
7. The State New York Coastal Erosion Law
8. The Clean Water Act
9. The Rivers and Harbors Act of 1899.

Given that there are no naturally occurring surface-water bodies, historical landmarks, wetlands, coastal shores, or endangered species on the site, none of the above location-specific ARAR's are applicable.

Necessary items for consideration are that on-site investigative and/or remedial activities, if any, should not cause further deterioration of environmental resources, and should not generate pollutants such as dust, noise, and odors that may unreasonably impact the local community.

Penetration of a confining layer that separates the Upper Glacial aquifer from the Magothy aquifer could form a vertical conduit that allows contaminated groundwater to migrate into the deeper aquifer. During the installation of two (2) deep monitoring wells at the site, the lithology will be carefully monitored using a split-spoon sampler, to prevent penetration of a confining layer, and to locate the well depth interval that will be screened.

3.2 Well Search

There are no municipal water supply wells located within a one (1) mile radius of the site. No water supply wells were identified during a visual walk-through survey of a one-quarter (1/4) mile radius of the site.

1.2 mile [illegible]

The nearest hydraulically downgradient public water supply wells are located approximately two and two-tenths (2.2) miles south of the site, on North Stewart Avenue, near Abode Lane (see Figure 2.6). According to the Nassau County Department of Health (NCDH) the wells are identified as N-7561 and N-9212, and have been completed at five hundred fifty (550) feet and six hundred four

(604) feet below grade, respectively, in the Magothy Formation. The top of the screened interval, respectively, for the above wells is at four hundred sixty-three (463) feet and five hundred thirty-eight (538) feet below grade. A third well, N-3553, located in the same well field, has been abandoned.

These wells tap and draw water that contains low levels of volatile organic compounds (VOC's). Water from well N-9212 contained 5.1 ppb trichloroethylene (TCE) on 9/24/91, and well N-7561 produced water that contained 12.0 ppb TCE on 5/6/92. Granular activated carbon adsorbers (GACA) have been installed to remove the VOC's from the water drawn from some of the listed wells. The water quality problems at these wells indicate a regional deterioration of water quality in the Hicksville area. ?

3.3 Chemical-Specific ARAR's

Chemical-specific ARAR's are health, environmental, and/or risk-based numerical values which, when applied to site specific conditions, result in the establishment of clean-up standards. As such, these values establish the acceptable amount or concentration of a chemical, or a group of chemicals, that may remain on-site or be discharged to the environment.

Numerous factors must be considered when choosing chemical ARAR's. These factors are:

- Protection of human health
- Protection of the environment
- Site location

- Site use, both historical and future.

Potential migratory pathways for pollutants at the site include volatilization and dust generation, overland stream-water flow (soil), and leaching of contaminants from soil to groundwater.

The site is inactive; no new waste is being generated, and the entire site is essentially paved. Therefore, the only migratory pathway that could potentially have an impact on the environment and human health is the leaching of contaminants from site soils beneath the pavement into the underlying aquifers.

The NYSDEC Cleanup Standards Task Force has accepted the Toxicity Characteristic Leaching Procedure (TCLP) to determine the leachability of soils.

The leachability of soil as measured by the TCLP will be used to determine if soil quality has been impacted.

With regard to groundwater quality, the Safe Drinking Water Act and 6 NYCRR Parts 700 through 705 are considered to be the chemical-specific groundwater standards and are applicable to the subject site. Therefore, the soil sample leachate will be compared to the above regulations to ascertain cleanup levels in site soils which would adequately protect groundwater quality. This evaluation, may require groundwater modeling to ascertain whether there are any local impacts on groundwater quality from on-site sources.

3.4 Action-Specific ARAR's

Action-specific ARAR's refer to those engineering controls which are required to reduce toxicity, mobility, or volume of hazardous wastes found on-site in concentrations which could potentially cause significant impacts to the environment or impair human health. Such actions could include capping (such as paving), excavation with off-site disposal, or various pump-and-treat technologies for contaminated water. For soils, either excavation and off-site disposal, or resurfacing all paved areas, would likely result in the following:

1. Mitigation of potential exposure to soil contamination
2. Elimination of on-site sources of groundwater contamination.

If the existing and/or potential sources of groundwater contamination are eliminated, continued groundwater monitoring may be the sole requirement. The results of the forthcoming RI report will provide the necessary groundwater monitoring data.

3.5 Data Needs

In order to comply with both chemical and action specific ARAR's, existing soil and groundwater quality data are required. Section 4.0 identifies and discusses the location of soil and groundwater samples and analytical requirements.

4.0 REMEDIAL INVESTIGATION ACTIVITIES

The findings of the completed Phase II Environmental Investigation indicated the need for additional investigation of three (3) distinct areas within the site to better define the extent of potential soil contamination. As previously referenced, the areas consist of: the east-side storm drain, the two (2) industrial leaching pools, and to a lesser extent, the rear parking area. Samples were collected from the two (2) north-side leaching pools and the east-side storm drain in conjunction with the preparation of the proposed Interim Remedial Measure Work Plan. The results of the sampling are included in a the Preliminary Sampling Investigation report.

The soil borings and monitoring well installations in the northern portion of the rear parking lot will be completed by a qualified environmental contractor. Borings will be completed using three (3) inch I.D., hollow-stem augers in five (5) foot flights. Soil/sludge samples will be collected from each boring, at two (2) foot intervals, by split spoon method as discussed in Section 5.2.

After each soil boring is completed, it will be abandoned using a grout cement/bentonite mix to prevent the introduction of standing water or sludge into the underlying soils. The grout mix will be of the same proportions used when the monitoring wells were installed as discussed in Section 4.2.3, Monitoring Well Installation.

A tremie pipe and grout pump will be used to dispense grout into the annular space until the entire ten (10) feet of the boring is filled. The augers will be removed with the drive assembly in reverse to minimize sediment disturbance. After the removal of the first five (5) foot auger flight, a measurement of the grout level within the augers will be taken and additional grout will be added as required. Upon the removal of the second auger flight, the boring will be completely filled with the grout/slurry, effectively abandoning it.

4.1 Field Investigation Program

The soil investigation outlined in this section is proposed to examine the back parking area. Because the depth to groundwater is approximately sixty (60) feet, the path of contamination is expected to be downward from the potential source. The soil sampling plan is intended to delineate the vertical and horizontal extent of impact on the subsurface conditions.

All sampling conducted under this work plan will be performed according to Sections 5.0 (Field and Sampling Protocol) and 6.0 (Sample Custody) of the Quality Assurance Project Plan, and to the safety requirements contained in the Health and Safety Plan (HASP).

Below is a discussion of the number of borings, and the depth of each boring that will be completed in each area. Figure 3.0 indicates the proposed location of each boring. Information concerning the quantity of soil samples to be collected for laboratory analysis and parameters to be tested is provided in Section 6.0.

Investigation of the rear parking area will commence with a magnetometer survey of the suspected disposal area. A grid will be laid out and a survey completed. The information obtained during the magnetometer survey will be used to construct a sampling plan of the area. Magnetometer readings will be recorded at grid intersections. An iso-grad map of the magnetometer readings will be made. The map will be used to locate any buried drums or tanks, and to guide the placement of soil borings. If warranted by the magnetometer survey, portions of the area will be excavated to search for buried drums or tanks.

Borings will be completed to confirm the findings of the magnetometer survey and to accurately determine the thicknesses of the fill material. A three (3) inch diameter split spoon will be used to recover sufficient sample matrix. A total of ten (10) borings (SB-7 through SB-16) will be completed within the back area, as shown in Figure 3.0. The actual sample locations may require modification based on the results of the magnetometer survey. All borings will be at least ten (10) feet deep and will be sampled using continuous split spoons. If the fill material is encountered at a depth greater than ten (10) feet in any boring, the boring will be advanced and continuous split-spoon soil samples will be collected in order to determine total thickness of the fill material. The borings will penetrate the underlying sediments at least four (4) feet.

From each boring, three (3) samples will be selected for analysis. The bottom sample will automatically be selected; the remaining two (2) samples will be selected based on appearance, PID measurements, and other characteristics. The samples will be collected and analyzed to obtain a vertical profile of the potential contamination.

4.2 Groundwater Quality Investigation

The following investigation is proposed to determine the groundwater quality conditions beneath the site. The site is included on the NYSDEC Inactive Hazardous Waste Disposal Site (IHWDS) list as a result of the suspected presence of solvents and metal compounds in the groundwater beneath it. If the suspected contaminants are detected in upgradient monitoring wells at similar or greater concentrations than the downgradient wells, the no-action alternative will be selected for groundwater.

4.2.1 Groundwater Contamination

Laboratory analysis of the groundwater samples, collected from the six (6) previously installed monitoring wells during the Phase II Environmental Investigation, indicated that low-level groundwater contamination was present within all of the subject site monitoring wells upgradient and downgradient of the two (2) alleged plating waste discharge points within the subject site. Downgradient monitoring wells exhibited slightly higher levels of 1,1,1-trichloroethane, chromium, and copper than the upgradient monitoring wells. According to groundwater quality information associated with the Hicksville area, the concentrations of contaminants identified in the groundwater samples are typical of regional contamination persistent within the Upper Glacial aquifer for this part of Nassau County.

The concentrations of detected contaminants identified in groundwater samples collected during the Phase II Environmental Investigation were below NYSDEC guidelines for Class GA (groundwater), outlined in 6 NYCRR Part 703.5 (3), except for 1,1,1 trichloroethane. The guidance value of fifty (50) ug/l for 1,1,1 trichloroethane was exceeded in the sample collected from MW-4, at an indicated concentration of seventy-two (72) ug/l.

4.2.2 Monitoring Well Network

There are currently four (4) shallow observation wells and six (6) shallow monitoring wells on the site (see Figure 2.0). Table 4.1 summarizes the well elevation and well completion details.

The six (6) monitoring wells were installed at the direction of the NYSDEC and are constructed to high-specification standards. The four (4) observation wells were installed prior to the Phase II Environmental Investigation and the details of the well installations have not been investigated. Only the six (6) monitoring wells will be sampled for determination of the site ground water quality. Top-of-casing elevations are known for all wells. A Water Table Elevation Map will be constructed using this data. The monitoring wells are screened across the water table surface in order to detect floating contaminants. The wells have been completed in the Upper Glacial Aquifer Member.

Table 4.1
Monitoring/Observation Wells

Well	Total Depth	Elevation TOC	Depth to Water 5/9/89	Water Elevation 5/9/89
MW-1	67.63	131.38	58.86	72.52
MW-2	67.80	131.29	58.86	72.43
MW-3	69.94	132.43	60.60	71.83
MW-4	69.04	132.08	60.35	71.73
MW-5	69.96	131.98	60.32	71.66
MW-6	68.60	131.72	60.06	71.66
OW-1	69.50	131.17	58.75	72.42
OW-2	68.00	131.07	58.77	72.40
OW-3	70.05	131.83	60.16	71.67
OW-4	68.00	131.97	60.36	71.61

TOC: Top-Of-Casing.

It is proposed that three (3) additional monitoring wells be installed at the property: two (2) deep monitoring wells and one (1) shallow well upgradient. The deep wells will be installed at upgradient and downgradient locations at the site to monitor the potential effect of the suspected contamination at the site on the deep aquifer. The deep wells will be constructed to monitor groundwater quality at the interval overlying the first confining layer. The shallow monitoring well will be installed at the northern property boundary to monitor the groundwater quality upgradient from the back parking area.

4.2.3 Monitoring Well Installation

The total depth and screen placement of the two (2) deep monitoring wells will be determined through the study of split-spoon soil samples. Soil samples will be recovered every five (5) feet during the well installation process. The samples will be recovered by split-spoon sampling methods (refer to Section 5.3 of the Quality Assurance Project Plan, Appendix A). Study of soil samples recovered from the well installation will enable Life Support Sciences, Inc. geologists to identify:

- Location of local water table
- Distribution of sediments, location of confining units, gravel deposits, etc.
- Location of the unconformity that separates the Upper Glacial and Magothy aquifers.

An eight (8) inch I.D., hollow-stem auger will be used to advance each boring in five (5) foot flights. In each boring, a ten (10) foot length, four (4) inch I.D., schedule-40, PVC threaded, flush joint well screen (twenty (20) mil slot screens) and riser casing assembly, will be installed in ten (10) foot sections. Joints, caps, and end plugs will be secured by threads.

A gravel pack will be placed in the annular space that surrounds the portion of the well occupied by the well screen, and for a minimum distance of two (2) feet above the top of the screen. The pack shall consist of clean, inert, siliceous material compatible with the natural formation, and the twenty (20) mil slot size of the well screen.

The annular space between the outside diameter of the monitoring well casing and the inside diameter of the auger flights, drill/casing, or boring wall will be sufficiently sized to allow free passage of the packing material to the screened depth.

The packing material will be poured slowly into the annular space to allow the material to settle and to avoid bridging. Frequent checks of the pack level within the annular space will be performed as the pack is being placed.

Sections of the auger flights or drill casing will be removed periodically to prevent binding of the casing in the bore-hole. Precise measurements will be taken frequently to assure that a portion of the pack is retained within the auger flights or drill casing at all times as they are removed. Measurements will be taken to ensure that the monitoring well assembly is not being pulled out of the ground as the augers and/or casing are being removed.

A bentonite seal will be placed on top of the sand pack to isolate the water bearing zone to be monitored, from the remaining portion of the bore-hole. The bentonite seal will consist of bentonite pellets or powder. The seal will be formed by slowly pouring the bentonite into the annular portion of the bore-hole. This will allow for proper swelling of the pellets before grout placement.

A grout mix, consisting of cement and bentonite, will be placed in the portion of the annular space between the auger flight, drill casing, or bore-hole wall, and the monitoring well assembly that extends from the top of the bentonite seal to the surface seal.

The proportions of cement/bentonite/water in the grout mix shall be ninety-four (94) lbs per three (3) to five (5) lbs per six and one-half (6.5) gallons. A ten (10) percent volume of hydrated lime ($Ca(OH)_2$) may be added to facilitate pumping. The mix will be dense enough to set up without being diluted by formation water, and to displace water from within the annular space such that undiluted grout will flow out of the auger flight, drill casing, or bore-hole at the ground surface.

The grout mix will be tremied either by gravity, or pumped to the bottom of the annular space to be filled, by means of a continuous pipe or hose.

Auger flights or drill casings that remain in the bore-hole are to be removed as the annular space is being filled with the grout mix. Upon removal of such items, additional grout mix is to be added to the bore-hole to fill it to a point no less than two (2) feet below the ground surface.

During installation of the deep monitoring wells the lithology will be monitored by using a split-spoon sampler to determine whether a confining layer overlies the Magothy Formation. If encountered, the confining layer will not be penetrated. The deep well will be completed and screened above the interval that separates the hydrologic units.

A flush-mounted, locking manhole cover will be placed over the monitoring well casing and secured with a Portland cement mixture.

This protective casing is favored over the standard stick-up well casing because the wells will be installed in the parking area.

Partially completed wells will be secured at the end of each day's work. The hollow-stem auger will be left in place in the hole but will remain attached to the drive-block assembly. The in-place resistance provided by the hydraulic system will ensure that the auger cannot be removed from the hole without heavy duty equipment.

Soil cuttings produced during the installation will be stockpiled on-site unless the cuttings exhibit evidence (e.g., odor, discoloration, etc.) of contamination. If contaminated soil is encountered, the cuttings will be drummed and left on-site until proper disposal methods have been determined.

4.2.4 Ground Water Sampling and Analysis

The object of the groundwater sampling plan is to obtain samples that are representative of the subsurface conditions, and that quantify the impact of suspected contamination upon the groundwater beneath the site. Groundwater samples will be collected and handled according to the protocol outlined in Section 5.0 of the Quality Assurance Project Plan.

4.2.5 Laboratory Analysis

Samples will be analyzed by H2M Labs, Inc., located in Melville, New York, employing the standard procedures described in the NYSDEC Analytical Services Protocol (ASP), December 1991.

Table 4.2 summarizes the specific sampling locations of soil samples, the number of soil samples to be selected for laboratory analysis, and specific parameters to be tested. Table 4.3 summarizes the same information in regard to groundwater samples. Specific chemical analytes are listed in Appendix E. Appendix A, Quality Assurance Project Plan, specifies the analytical methods, holding times, preservation techniques, etc., pertinent to the proposed soil and groundwater sampling. Section 4.3 of Appendix A discusses laboratory QA/QC. All sampling activities are scheduled to occur in the northern portion of the rear parking lot.

4.2.6 Laboratory Analysis of Soil Samples

Thirty (30) soil samples will be selected for chemical analysis. Samples to be analyzed will be based on the following criteria:

- Depth and location from which each soil sample was recovered
- Physical character of the soil sample, (i.e., chemical discoloration)
- PID screening of sample.

All soil samples will be accompanied by the appropriate QA/QC samples (e.g., trip blanks, field blanks).

Table 4.2
Soil Sampling Locations and Analyses

Sample I.D.	*Approximate Sample Location	Sample Depth	Analytical Parameters
SB-01U	Soil Boring #1	Upper	TCL VOC's, TCL Semi-volatiles, TAL Metals
SB-01M	Soil Boring #1	Middle	Same as above.
SB-01B	Soil Boring #1	Bottom, 10'	Same as above.
SB-02U	Soil Boring #2	Upper	Same as above.
SB-02M	Soil Boring #2	Middle	Same as above.
SB-02B	Soil Boring #2	Bottom, 10'	Same as above.
SB-03U	Soil Boring #3	Upper	Same as above.
SB-03M	Soil Boring #3	Middle	Same as above.
SB-03B	Soil Boring #3	Bottom, 10'	Same as above.
SB-04U	Soil Boring #4	Upper	Same as above.
SB-04M	Soil Boring #4	Middle	Same as above.
SB-04B	Soil Boring #4	Bottom, 10'	Same as above.
SB-05U	Soil Boring #5	Upper	Same as above.
SB-05M	Soil Boring #5	Middle	Same as above.
SB-05B	Soil Boring #5	Bottom, 10'	Same as above.
SB-06U	Soil Boring #6	Upper	Same as above.
SB-06M	Soil Boring #6	Middle	Same as above.
SB-06B	Soil Boring #6	Bottom, 10'	Same as above.
SB-07U	Soil Boring #7	Upper	Same as above.
SB-07M	Soil Boring #7	Middle	Same as above.
SB-07B	Soil Boring #7	Bottom, 10'	Same as above.
SB-08U	Soil Boring #8	Upper	Same as above.
SB-08M	Soil Boring #8	Middle	Same as above.
SB-08B	Soil Boring #8	Bottom, 10'	Same as above.
SB-09U	Soil Boring #9	Upper	Same as above.
SB-09M	Soil Boring #9	Middle	Same as above.
SB-09B	Soil Boring #9	Bottom, 10'	Same as above.
SB-10U	Soil Boring #10	Upper	Same as above.
SB-10M	Soil Boring #10	Middle	Same as above.
SB-10B	Soil Boring #10	Bottom, 10'	Same as above.

*Note: See Figure 3.0, Proposed Soil Boring and Monitoring Well Locations.

4.2.7 Laboratory Analysis of Groundwater Samples

In order to obtain and ensure accurate representation of the groundwater conditions, groundwater samples will be collected during two (2) episodes, to be known as Initial and Confirmatory episodes. A total of nine (9) wells will be sampled for laboratory analysis during each episode; three (3) new wells and six (6) pre-existing wells. The analyses will be performed in accordance with Analytical Services Protocol 12/91 as indicated in the Quality Assurance Project Plan (Section 5.0). All groundwater samples and appropriate QA/QC samples (field-blanks, trip-blanks) will be analyzed for TCL VOC compounds, TCL semi-volatiles, and TCL metals. At the discretion of the NYSDEC case manager, the quantity of analysis parameters may be reduced during the confirmatory episode.

Table 4.3
Groundwater Sampling Locations & Analysis

Sample I.D.	Sample Location	Sample Episode	Analytical Parameters
MW01-E1	Monitoring Well #1	Initial	TCL VOC's, TCL Semi-volatiles, TAL Metals
MW02-E1	Monitoring Well #2	Initial	Same as above.
MW03-E1	Monitoring Well #3	Initial	Same as above.
MW04-E1	Monitoring Well #4	Initial	Same as above.
MW05-E1	Monitoring Well #5	Initial	Same as above.
MW06-E1	Monitoring Well #6	Initial	Same as above.
MW07-E1	Monitoring Well #7, Shallow	Initial	Same as above.
MW08-E1	Monitoring Well #8, Deep	Initial	Same as above.
MW09-E1	Monitoring Well #9, Deep	Initial	Same as above.
MW01-E2	Monitoring Well #1	Confirmatory	TCL VOC's, TCL Semi-volatiles, TCL Metals
MW02-E2	Monitoring Well #2	Confirmatory	Same as above.
MW03-E2	Monitoring Well #3	Confirmatory	Same as above.
MW04-E2	Monitoring Well #4	Confirmatory	Same as above.
MW05-E2	Monitoring Well #5	Confirmatory	Same as above.
MW06-E2	Monitoring Well #6	Confirmatory	Same as above.
MW07-E2	Monitoring Well #7, Shallow	Confirmatory	Same as above.
MW08-E2	Monitoring Well #8, Deep	Confirmatory	Same as above.
MW09-E2	Monitoring Well #9, Deep	Confirmatory	Same as above.

4.3 Hydrogeologic Assessment

The hydrogeologic assessment will be based on previous investigations of the site, the soil boring logs, and hydrologic data generated by the following proposed field work.

4.3.1 Characterization of Site Stratigraphy

The characterization of the site stratigraphy will be based on soil boring logs generated during the drilling of on-site wells, the previous site evaluations, and interpretation of data collected during the Phase II Environmental Site Assessment.

A geologic cross-section that incorporates the information generated by the proposed field work will be constructed. The cross-section will be used to formulate any additional remediation plans.

4.3.2 Hydrologic Setting

The site's hydrologic setting will be qualitatively evaluated by recording the recharge characteristics during monitoring well purging operations, and by use of slug tests. Prior to sampling, the volume of water necessary to purge the well and the recharge time for the well to recover to ninety (90) percent of static will be recorded. If groundwater remediation is necessary, then aquifer pump tests will be performed.

Quantitative aquifer testing will be in the form of a slug test. An electronic pressure transducer data logger will be used to record the draw-down and recharge data that are necessary to calculate the aquifer conductivity. The effluent groundwater will be treated on-site with granular activated carbon, or drummed for disposal as appropriate.

4.3.3 Characterization of Groundwater Flow

The characterization of groundwater flow will be based on the hydraulic gradient and conductivity. The hydraulic gradient will be calculated from water elevation measurements recorded from on-site monitoring and observation wells. A Water Table Elevation Map will be constructed from the water elevation data.

4.3.4 Characterization of Ground Water Quality

The characterization of groundwater quality will be based on the Initial and Confirmatory sampling episodes. Iso-pleth maps of critical chemical concentration will be constructed, if enough data points are provided, by analysis of groundwater samples. The maps will indicate sample collection date, groundwater flow direction, hydraulic gradient, and shape of the contaminant plume, if present.

4.4 Air Quality Assessment

Air sampling is essential for the assessment and maintenance of human and environmental health. A field-screening program will be implemented to determine whether concentrations of air pollutants exist on-site. The field screening program will consist of air sample collection and laboratory analysis. Air samples may be procured at three (3) distinct intervals. Air samples will be collected prior to any remediation activities to establish baseline levels of suspected air contaminants. Air samples will be collected during any remediation activities, and final sampling will occur after the remediation is complete.

Air samples will be analyzed by a certified laboratory for contaminants that include but, are not limited to, volatile organics (PID readings) and total dust.

Due to the unpredictable nature of the environment, meteorological conditions will be assessed at the time of sampling in order to ensure sample integrity and proper documentation.

4.5 Industrial Park Survey

At least seven (7) NYSDEC Inactive Hazardous Waste Disposal Sites are located within a one (1) mile radius of the subject site. Table 4.4 lists the approximate distance and physical orientation of the NYSDEC IHWD sites relative to the site.

Table 4.4
Local Inactive Hazardous Waste Disposal Sites

NYSDEC Site Name	Address	Site Relation
General Instrument Corp.	600 West John Street	0.9 mile / west side-gradient
Anchor Lith Kem	500 West John Street	0.6 mile / upgradient
Mattiace PetroChemical	530 West John Street	0.7 mile / upgradient
Alsey Manufacturing	270 Duffy Avenue	0.2 mile / east-side-gradient
AGO Associates	499 West John Street	0.5 mile / upgradient
Depew Manufacturing	359 Duffy Avenue	0.4 / west side-gradient
Air Techniques Inc.	70 Cantiague Rock Road	0.9 / west side-gradient

Note: Direction noted is in relation to the regional groundwater flow direction.

Contaminants identified at the above sites include many of the volatile organic and metal compounds identified at the subject site.

4.6 Remedial Investigation Report

Upon completion of the RI activities, a Remedial Investigation Report will be generated. The report will include all data, evaluations, interpretations, and recommendations developed during the implementation of the NYSDEC approved RI/FS work plan. The Remedial Investigation Report will be prepared and/or reviewed by the individual responsible for performance of the work plan. The report will evaluate the effectiveness of activities as proposed in the RI/FS work plan.

5.0 FEASIBILITY STUDY

The basis for the Feasibility Study () and possible selection of a remedial alternative will be generated from data obtained and evaluated during the remedial investigation. Based on data obtained from the Phase II Environmental Investigation, an FS may be the sole requirement. This is because the media found to be possibly contaminated are small, localized areas of soil and, potentially, an on-site plume. Technologies for corrective actions for small, localized, impacted areas have proven to be effective and reliable (such as excavation with off-site disposal). The remedial alternatives will be presented to the NYSDEC for review, comments, and approval.

As part of the prescreening process, Life Support Sciences, Inc. will evaluate the alternatives from human health and environmental impact viewpoints, and will identify potential mitigation measures. The No-Action alternative will be considered as a potentially applicable option. The alternatives will be prescreened and only those that possess technical merit will be proposed for further assessment.

If a contaminant plume originating on-site is identified, groundwater withdrawal and a range of treatment technologies will be evaluated. These technologies may include air stripping and sparging. Bench- and pilot-scale studies may be required prior to the final evaluation of these alternatives.

5.1 Objectives of the Feasibility Study

The overall objective of the FS is to develop and evaluate remedial action alternatives. The identification of remedial action alternatives will be based on consideration of criteria:

- Protection of public health and the environment
- Compliance with federal and state public health and the environmental requirements identified for the site (ARAR's)
- Usage of permanent solutions and alternative treatment technologies to the most practicable extent within proven technological feasibility and availability
- Effectiveness of techniques or treatments to permanently reduce the toxicity, mobility, or volume of contamination
- Cost minimization.

5.2 Initial Screening Alternatives

Screening of selected remediation technologies, potentially applicable to the Magnusonic Devices, Inc. site, will be conducted to reduce the number of alternatives that will receive detailed analysis. As the screening step is conducted, the most promising, feasible subset of alternatives will be identified through an evaluation of the relative effectiveness and cost. The effectiveness is related to its overall performance in elimination, reduction, and control of the current and potential risks posed by the site during implementation.

As indicated in the National Contingency Plan, three (3) general criteria will be used in the initial screening, including costs, potential environmental impacts, and acceptability of engineering practices. Each alternative will be screened under each criterion and the results entered in a matrix for comparison. The process of elimination is discussed below.

- To evaluate the technical feasibility of each alternative, the following factors will be considered: applicability to identified contaminants, reliability of the technology, performance records, and operation and maintenance problems.

- Potential impacts on the environment and public health of the proposed alternative(s) will be evaluated from both negative and positive perspectives. Potentially adverse effects include the potential release of contaminants during and after the implementation of the remedial action. All alternatives identified as having potential significant adverse effects, or which do not adequately protect the environment and public health, will not pass the screening.

- Cost screening will be undertaken for all alternatives which satisfy the first two (2) criteria specified above. The cost-effectiveness evaluation will involve estimates of both capital and operating expenditures and maintenance fees. An alternative with substantially greater costs than other alternatives, without corresponding benefit to health or environment, will not receive further analysis.

- Acceptable engineering practices refer to the feasibility of implementing an alternative under the site conditions to effectively solve the problems presented by a release of contaminants. Any alternatives that fail to satisfy the cleanup objectives, regulatory requirements, guidelines defining adequate protection of human health or the environment, and cost considerations will be eliminated during the screening process.

5.2.1 Soil Remediation

Soil remediation alternatives to be evaluated include excavation with off-site disposal and, if applicable, soil vapor extraction. Soil which can be cost-effectively excavated and disposed of off-site would include metal-contaminated soils or small volumes of VOC-contaminated soils. If a large volume of VOC-contaminated soil is discovered, and is amenable to vapor extraction, then Soil Vapor Extraction (SVE) technologies will be evaluated.

5.2.2 Groundwater Remediation

Groundwater remediation alternatives to be evaluated, if required, include SVE with sparging; pump and treat; and natural attenuation (no-action alternative with monitoring). Current groundwater quality data indicates the possible presence of minor (in concentration and size) VOC contamination of groundwater which may be attributable to upgradient sources. The removal of any potential on-site groundwater contamination sources, such as soil hot-spots, may justify the natural attenuation alternative with regular monitoring.

5.3 Treatability Studies

Additional investigations may be required to evaluate remedial alternatives selected for the site. Field investigations may require bench- or pilot-scale testing to determine feasibility of various treatment technologies considered for site remediation. Computer modeling may be used to enhance field studies, or in limited cases, will be applied when field studies are not feasible. The treatability studies would only be performed for those technologies which require testing of site-specific materials to document effectiveness or feasibility. Examples of technologies that may require field studies are vapor extraction and air stripping.

5.4 Detailed Evaluation

Upon completion of the RI data collection phase, consideration of the alternatives that remain as potentially applicable for the site, Life Support Sciences, Inc. will conduct a detailed analysis of these alternatives.

Life Support Sciences, Inc. will examine alternatives individually against criteria, and analyze alternatives, relatively, for performance according to nine (9) criteria:

1. Overall protection of human health and the environment
2. Compliance with ARAR's
3. Long-term effectiveness and permanence
4. Reduction of contaminant toxicity, mobility, or volume
5. Short-term effectiveness
6. Implementability
7. Cost
8. State acceptance
9. Community acceptance.

The selection of a single alternative from the list of feasible alternatives will result from balanced consideration of established technical, environmental, public health, institutional, and cost factors. Each alternative will be described in sufficient detail for evaluation and comparison.

5.4.1 Cost Analysis

The cost analysis procedure will consist of four (4) components:

1. Estimation of costs. The estimated costs of each alternative will include: direct capital costs (e.g., construction costs, equipment costs, disposal costs) and indirect capital costs (e.g., engineering, start-up contingency). Capital, maintenance, and operating costs will be considered independently in developing strategies.

2. Present-Worth Analysis. The estimated cost will be expressed as a standardized (present-worth) total cost over the period that the plan is proposed to be implemented and monitored.

3. Sensitivity Analysis. The cost analysis includes an analysis of the sensitivity of costs to changes in key parameters. The sensitivity of cost to uncertainties will be analyzed by varying specific assumptions associated with design, implementation, operation, discount rates, and effective life of an alternative, and noting the effects on estimated costs.

4. Summary of Alternative Analysis. Results of the cost analysis will be summarized in a table to be used for the selection of alternatives.

5.4.2 Technical Factors

The technical factors that will be used to evaluate alternatives include effectiveness, reliability, implementability, and safety.

1. The **effectiveness** of the performance of the technical alternative will be evaluated by two (2) factors: effectiveness (the extent to which the alternatives are expected to meet or exceed responsive objectives); useful life (the extent of time to which the alternative effectiveness can be maintained).

2. The **reliability** of an alternative will be evaluated by two (2) factors: operation and maintenance requirements, and performance history (the degree of successful operation of the same alternative).

3. To determine the **implementability** of an alternative the following factors will be used: constructibility (the anticipated difficulties in installation due to site conditions and conditions external to the site), and time (an anticipated time necessary to conduct special studies, design, construction, and any other technical steps in implementation, and anticipated time to achieve beneficial results, ease of operation, and ease of repair).

4. **Safety factors** will include evaluation of acute and chronic health impacts to operators, as well as to the nearby community and environments during implementation.

5.4.3 Public Health and Environmental Assessments

Life Support Sciences, Inc. will provide a qualitative environmental and public health assessment of each alternative.

The public health and environmental effects of the remediation alternatives will be considered in the following ways:

1. The method and the extent that the alternative addresses each particular contamination problem

2. Satisfaction of the ARAR's requirements

3. The effectiveness of the alternative.

In addition, the environmental evaluation will address the possibility of a future release of contaminants to the environment, future site utilization, and the potential release of contaminants during the implementation of the remedial action.

The qualitative public health and environmental assessments will address six (6) alternatives:

1. Eliminate the need for long-term site management
2. Involve techniques that reduce toxicity as the principal element
3. Involve techniques that reduce mobility as the principal element
4. Involve techniques that reduce volume as the principal element
5. Represent a containment option involving little or no treatment
6. No action.

5.4.4 Regulations and Constraints

The alternatives will be formulated and refined to ensure that they comply with the ARAR's and all federal, state, and local regulatory guidelines applicable to the site.

5.5 Remedial Action Recommendations (FS Report)

Upon evaluation of the alternatives, a recommendation will be made for the selection of the remedial action alternative for each area of concern at the site. The recommendations will be presented at a meeting with the NYSDEC.

The results, findings, and recommendations of the FS phase of work will be presented and discussed in the FS report. The FS report will document the approach and methodology used to select the recommended remedial action alternative. The FS report will be prepared in a manner consistent with the approved work plan and pertinent guidance documents. A New York State licensed professional engineer will certify that the FS was conducted in accordance with the approved work plan.

6.0 RI/FS SCHEDULE

Within ten (10) weeks of notification that Order-On-Consent #WP-045-83 has been modified to provide for conduct of the RI/FS, and that this work plan has been approved and appended thereto, Life Support Sciences, Inc. will commence the RI fieldwork. Life Support Sciences, Inc. will contact NYSDEC personnel five (5) days in advance of the scheduled field work. The soil borings are expected to be completed in five (5) days of initial field work. The installation of monitoring wells is expected to require five (5) days of field work. Well development and groundwater sampling can be accomplished in three (3) days. It is anticipated that the laboratory data analysis package will be available about four (4) weeks after the samples are received by the lab.

Given the scope of work, the project is expected to take approximately six (6) months from the initiation of field work to the final submittal of the report to the NYSDEC.

FIGURES

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FIGURE 1.0

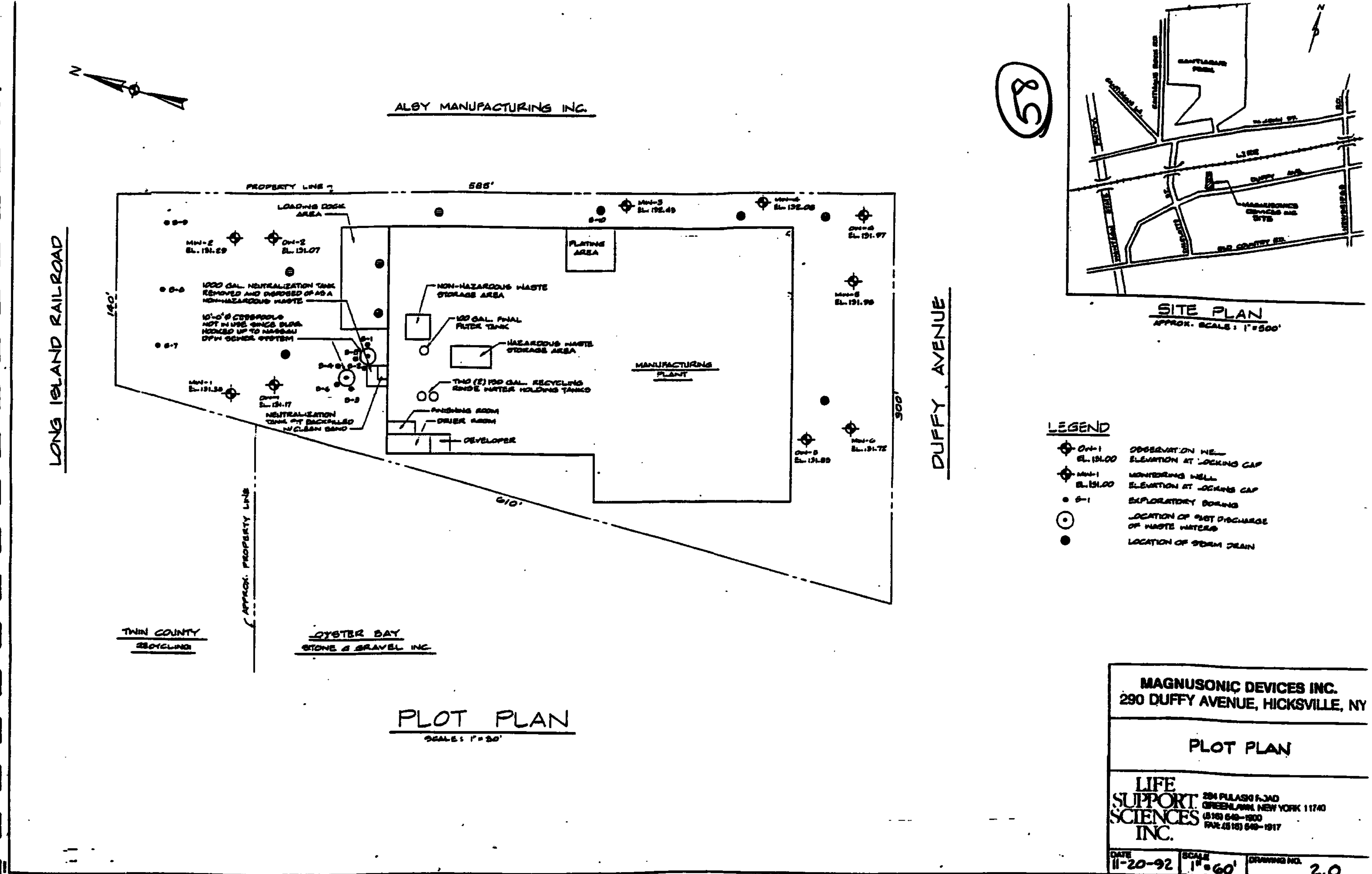
LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917

SITE LOCATION

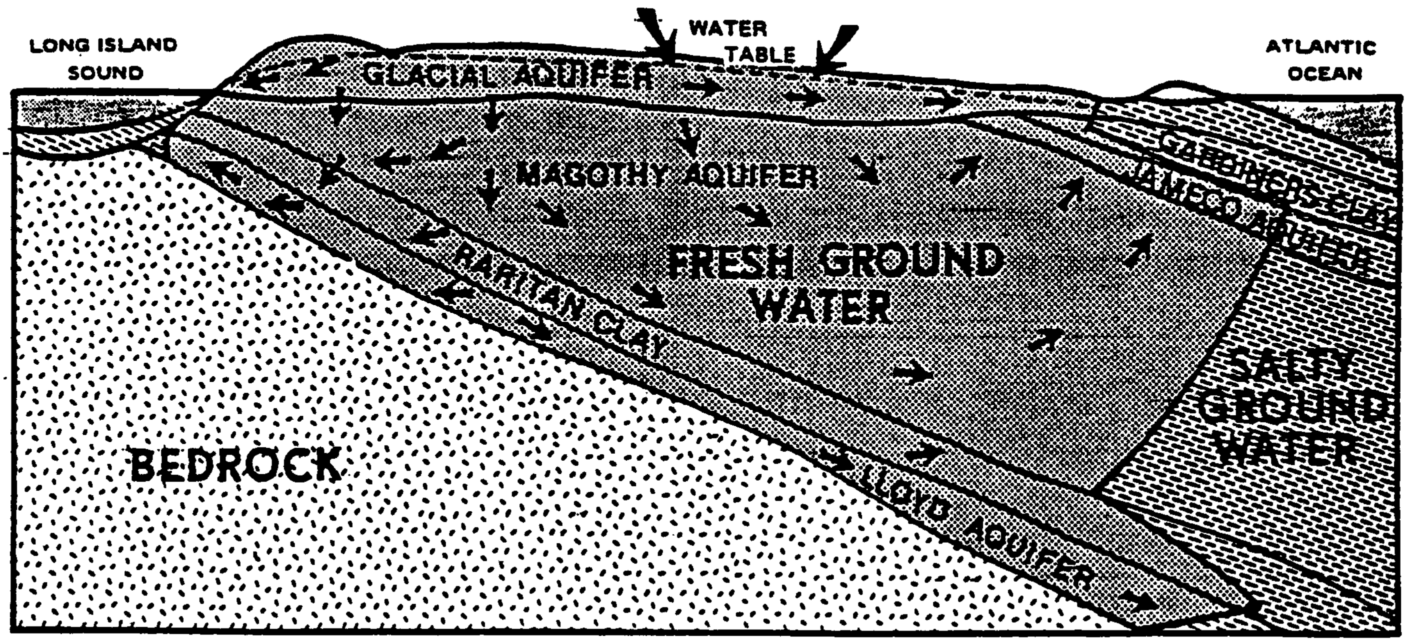
MAGNUSONIC DEVICES

290 DUFFY AVENUE

58


ALSY MANUFACTURING INC.
PROPERTY LINE
585'
LOADING DOCK AREA
PLATING AREA
NON-HAZARDOUS WASTE STORAGE AREA
100 GAL. FINAL RINSE TANK
HAZARDOUS WASTE STORAGE AREA
MANUFACTURING PLANT
TWO (2) 150 GAL. RECYCLING RINSE WATER HOLDING TANKS
FINISHING ROOM
DRIER ROOM
DEVELOPER
1000 GAL. NEUTRALIZATION TANK REMOVED AND DISPOSED OF AS A NON-HAZARDOUS WASTE
NEUTRALIZATION TANK PIT BACKFILLED W/ CLEAN SAND
LONG ISLAND RAILROAD
DUFFY AVENUE
140'
900'
610'
APPROX. PROPERTY LINE
TWIN COUNTY RECYCLING
OYSTER BAY STONE & GRAVEL INC.
PLOT PLAN
SCALE: 1"=30'
SITE PLAN
APPROX. SCALE: 1"=500'
LEGEND
OBSERVATION WELL ELEVATION AT LOCKING CAP
MONITORING WELL ELEVATION AT LOCKING CAP
EXPLORATORY BORING
LOCATION OF PAST DISCHARGE OF WASTE WATERS
LOCATION OF STORM DRAIN
MAGNUSONIC DEVICES INC.
290 DUFFY AVENUE, HICKSVILLE, NY
PLOT PLAN
LIFE SUPPORT SCIENCES INC.
DATE 11-20-92
SCALE 1"=60'
DRAWING NO. 2.0

GEOLOGIC SECTION
NASSAU COUNTY, NEW YORK



Not to scale

Source: USGS

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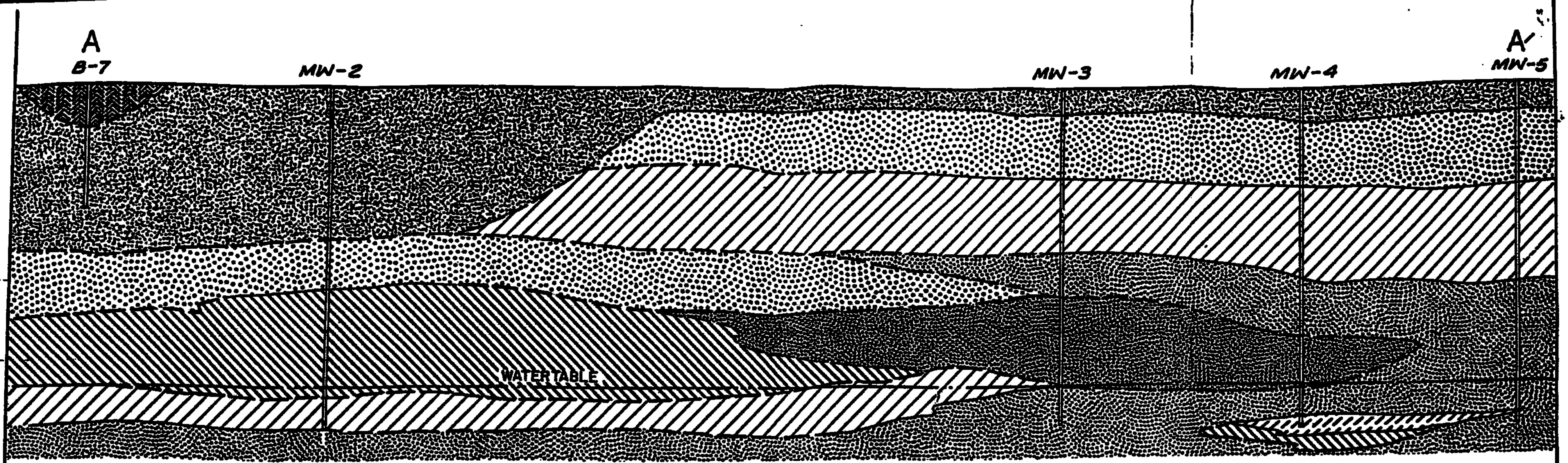
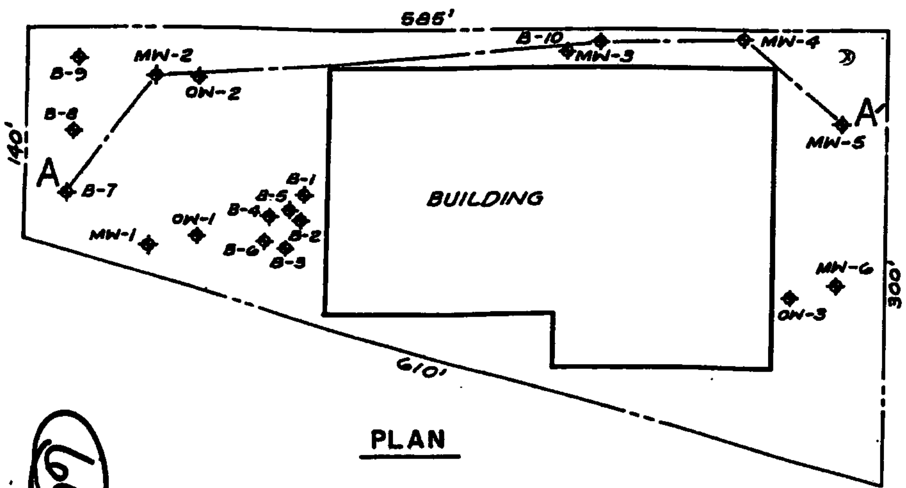
FIGURE 2.1

GEOLOGIC CROSS SECTION

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917



SCALES: horizontal, 1"=40'
vertical 1"=20'



PLAN

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LEGEND

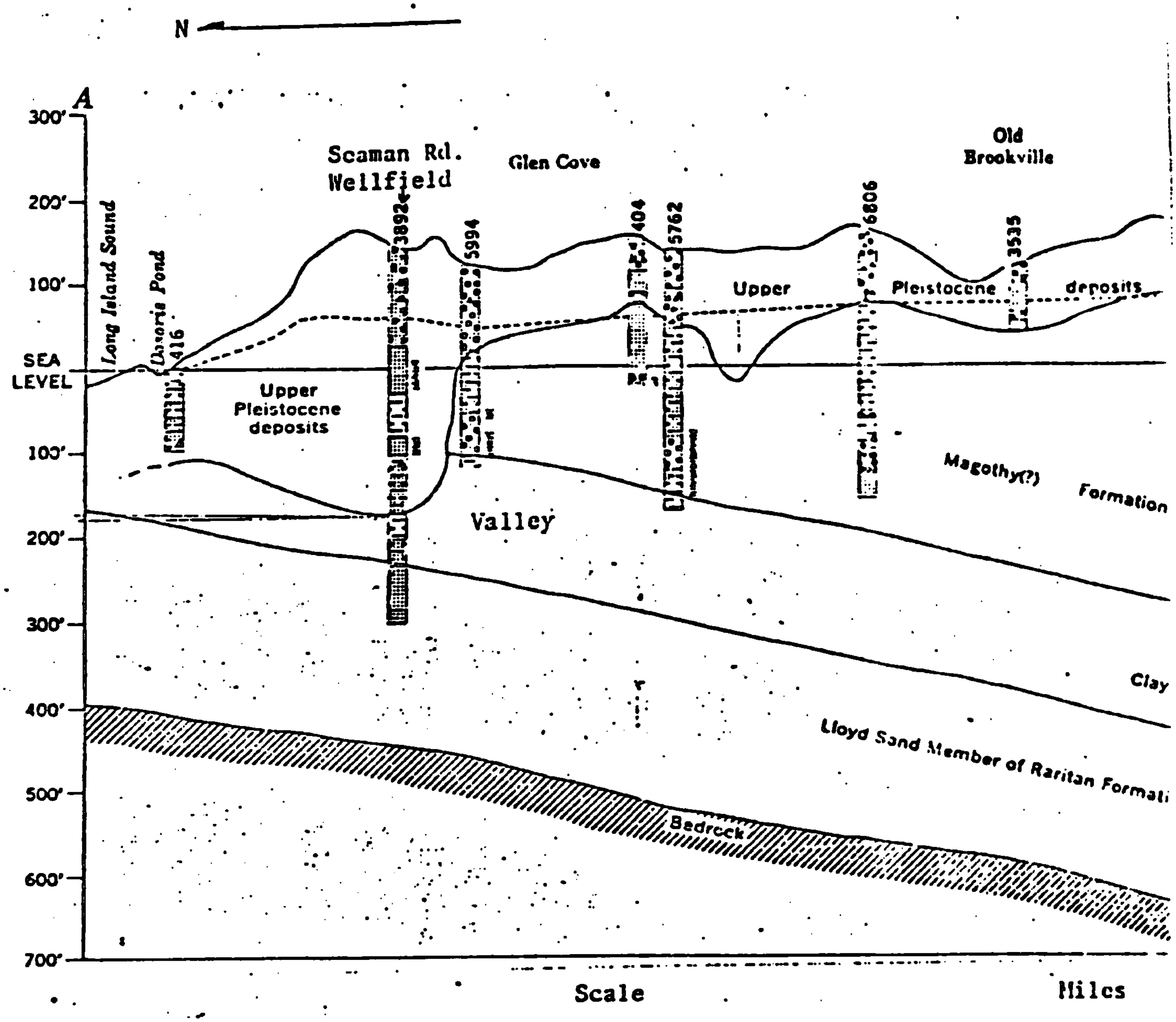
- Very coarse, grained quartz, sand and gravel
- Coarse grained Quartz sands with gravel
- Medium to coarse grained Quartz sands with gravel
- Medium grained Quartz sands with gravel
- Fine to medium grained sands little gravel
- Unsorted sands and gravel varying amounts of fines (fill?)
- Silty, clay rich sediments
- Non homogenious material containing an assortment of manmade material
- A____A' Line of sedimentary cross section
- Sedimentary contact, dashed where approximately located
- watertable — Approximate location of water table during monitoring well installation

MAGNUSONIC DEVICES INC.
290 DUFFY AVENUE, HICKSVILLE, NY

SEDIMENTARY CROSS SECTION

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917

DATE	SCALE	DRAWING NO.
11-20-92	AS SHOWN	2.2

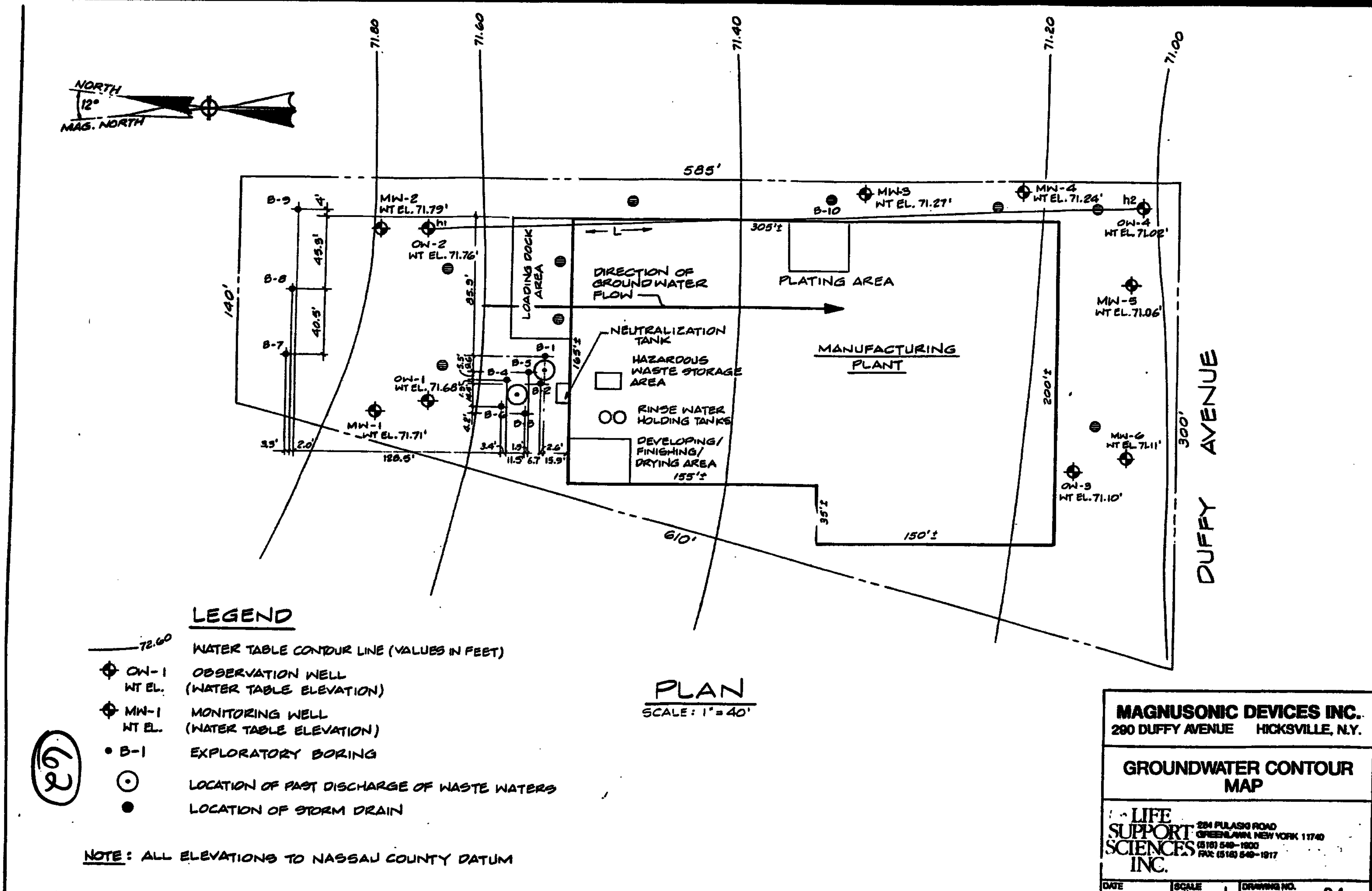


(61)

FIGURE 2.3

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917

REGIONAL GROUNDWATER FLOW


71.80
71.60
71.40
71.20
71.00
NORTH
12°
MAG. NORTH
585'
610'
140'
300'
B-9
B-8
B-7
B-10
B-1
B-2
B-3
B-4
B-5
B-6
MW-2
WT EL. 71.79'
OW-2
WT EL. 71.76'
MW-3
WT EL. 71.27'
MW-4
WT EL. 71.24'
OW-4
WT EL. 71.02'
MW-5
WT EL. 71.06'
MW-6
WT EL. 71.11'
OW-3
WT EL. 71.10'
OW-1
WT EL. 71.68'
MW-1
WT EL. 71.71'
h1
h2
45.9'
40.5'
85.9'
185'±
305'±
200'±
155'±
150'±
35'±
128.5'
LOADING DOCK AREA
DIRECTION OF GROUNDWATER FLOW
PLATING AREA
NEUTRALIZATION TANK
HAZARDOUS WASTE STORAGE AREA
RINSE WATER HOLDING TANKS
DEVELOPING/ FINISHING/ DRYING AREA
MANUFACTURING PLANT
DUFFY AVENUE
LEGEND
72.60 WATER TABLE CONTOUR LINE (VALUES IN FEET)
OW-1 WT EL. OBSERVATION WELL (WATER TABLE ELEVATION)
MW-1 WT EL. MONITORING WELL (WATER TABLE ELEVATION)
B-1 EXPLORATORY BORING
LOCATION OF PAST DISCHARGE OF WASTE WATERS
LOCATION OF STORM DRAIN
NOTE: ALL ELEVATIONS TO NASSAU COUNTY DATUM
PLAN
SCALE: 1" = 40'
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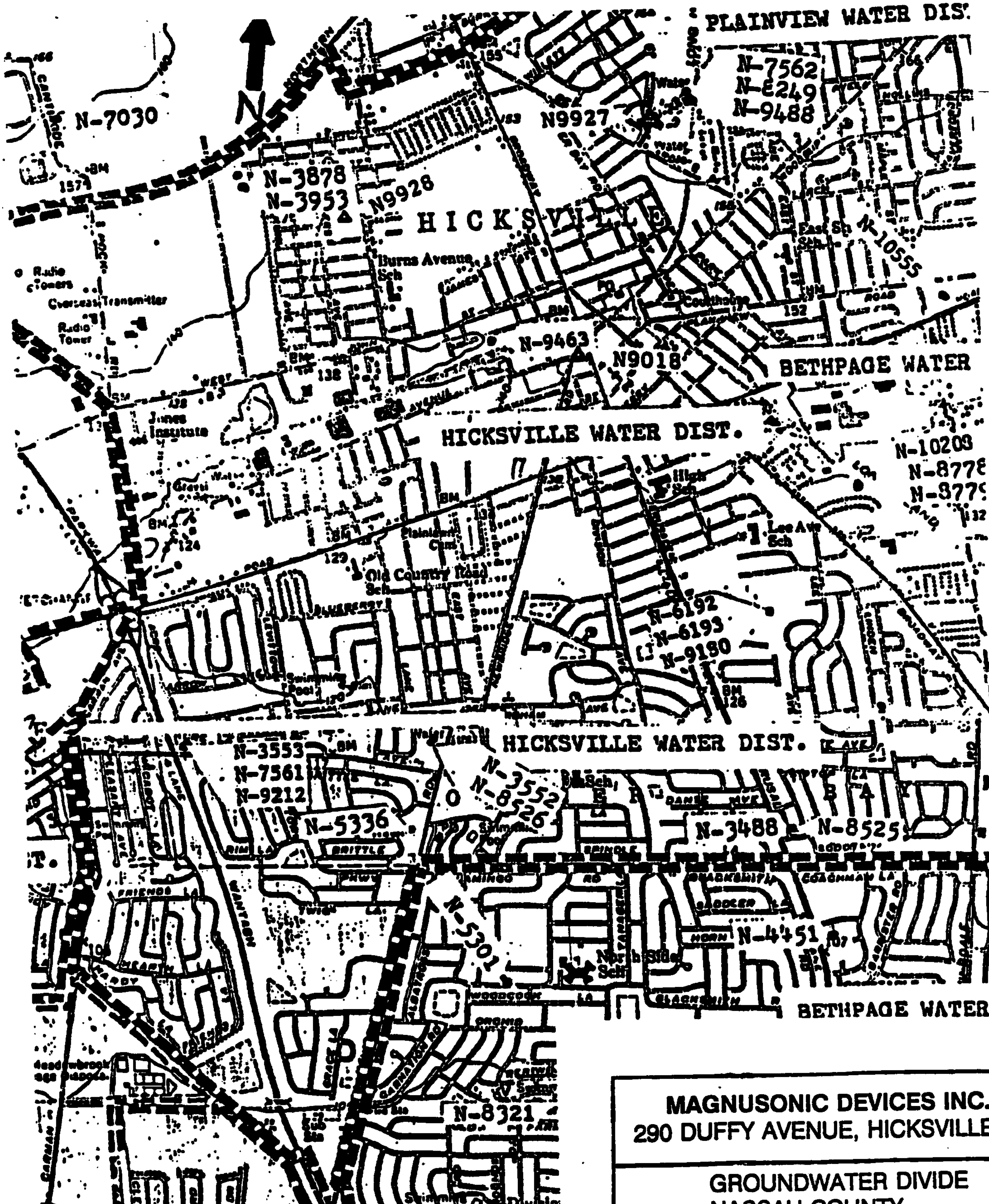
MAGNUSONIC DEVICES INC.
290 DUFFY AVENUE HICKSVILLE, N.Y.
GROUNDWATER CONTOUR MAP
LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX (516) 549-1917
DATE
SCALE 1" = 50'
DRAWING NO. 2.4



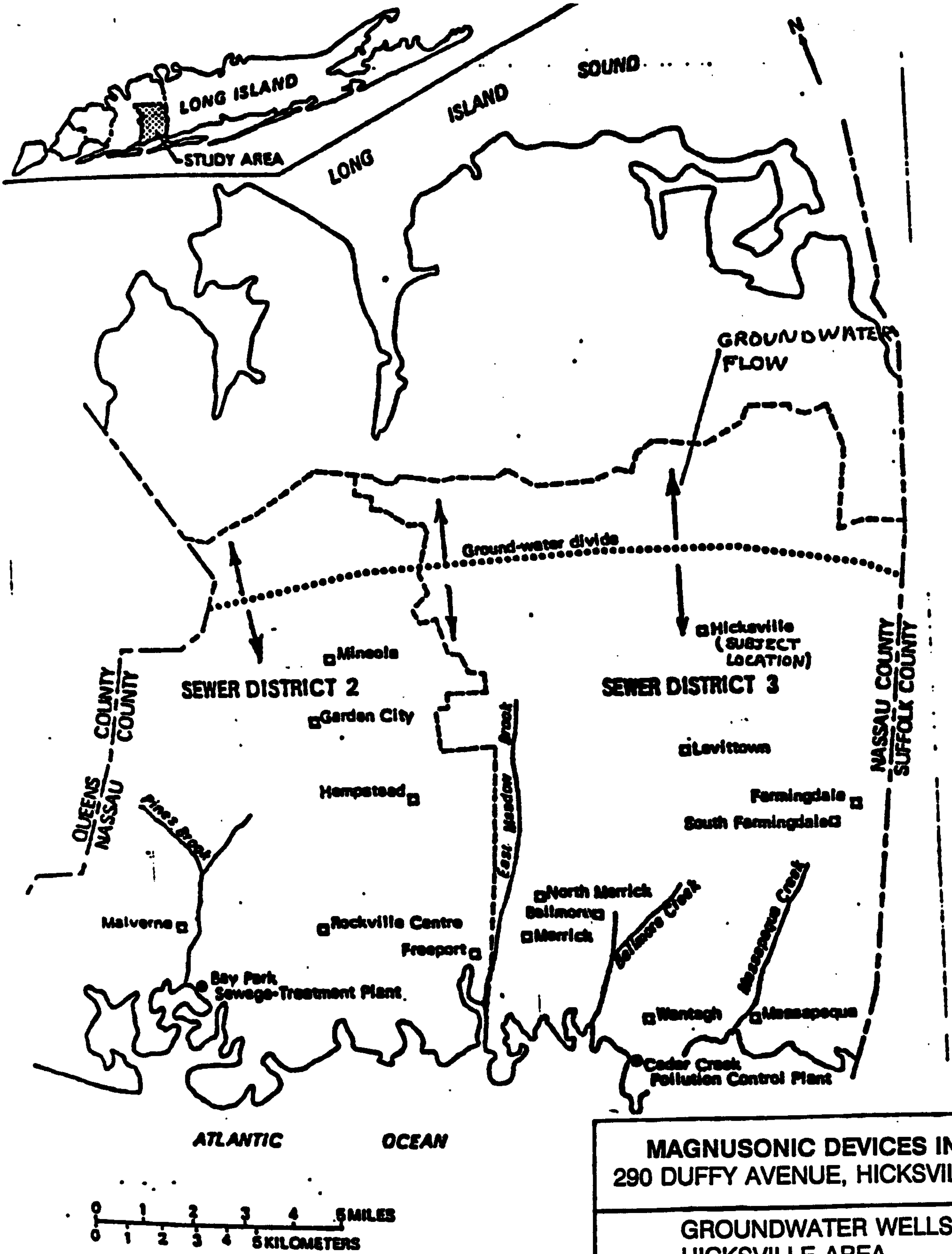
MAGNUSONIC DEVICES INC.
290 DUFFY AVENUE, HICKSVILLE, NY

GROUNDWATER DIVIDE
NASSAU COUNTY
SOURCE: U.S.G.S

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917

63

DATE	SCALE	DRAWING NO.
11-20-92	AS SHOWN	2.5



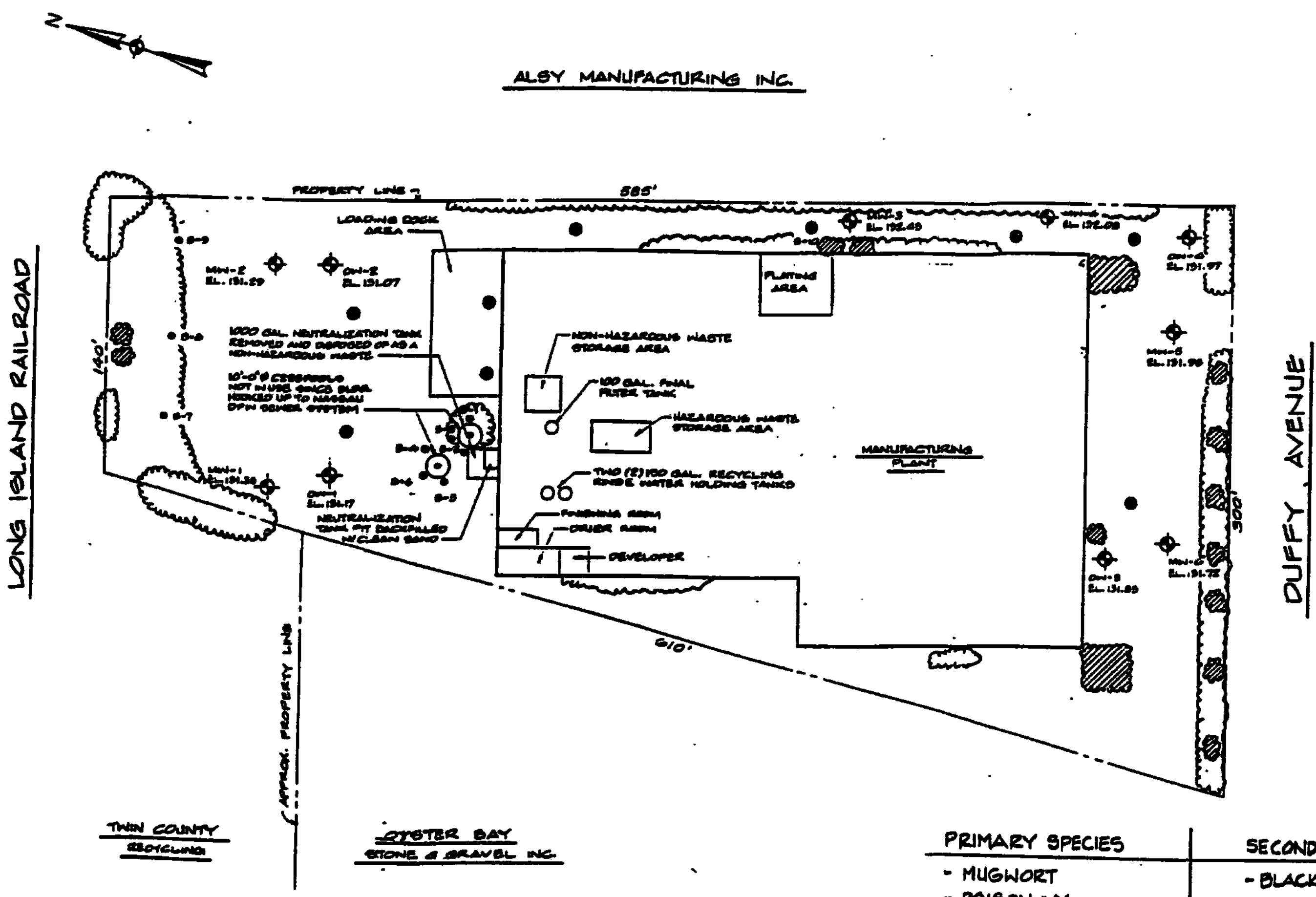
MAGNUSONIC DEVICES INC.
290 DUFFY AVENUE, HICKSVILLE, NY

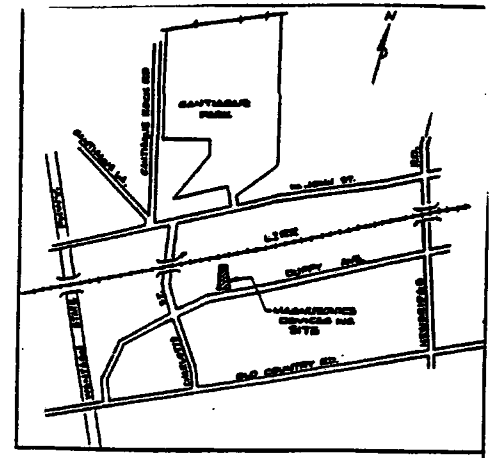
GROUNDWATER WELLS
HICKSVILLE AREA
SOURCE: U.S.G.S.. NYCDEC

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1800
FAX: (516) 549-1917

64

DATE	SCALE	DRAWING NO.
11-20-92	AS SHOWN	2.6





SITE PLAN
APPROX. SCALE: 1"=500'

LEGEND

- OW-1 EL. 131.00 — OBSERVATION WELL ELEVATION AT LOCKING CAP
- MW-1 EL. 131.00 — MONITORING WELL ELEVATION AT LOCKING CAP
- B-1 — EXPLORATORY BORING
- LOCATION OF PAST DISCHARGE OF WASTE WATERS
- LOCATION OF STORM DRAIN
- PRIMARY VEGETATION
- SECONDARY VEGETATION

PRIMARY SPECIES	SECONDARY SPECIES
- MUGWORT	- BLACK LOCUST
- POISON IVY	- SUGAR MAPLE
- MILK THISTLE	- YEW BUSHES
- WORMWOOD	- BIG-TOOTH ASPEN
- AMERICAN BITTERSWEET	- ASH
- POISON SUMAC	- EASTERN HEMLOCK
- GRASS	- SASSAFRASS
	- RED PINE

ON-SITE VEGETATIVE COVER MAP

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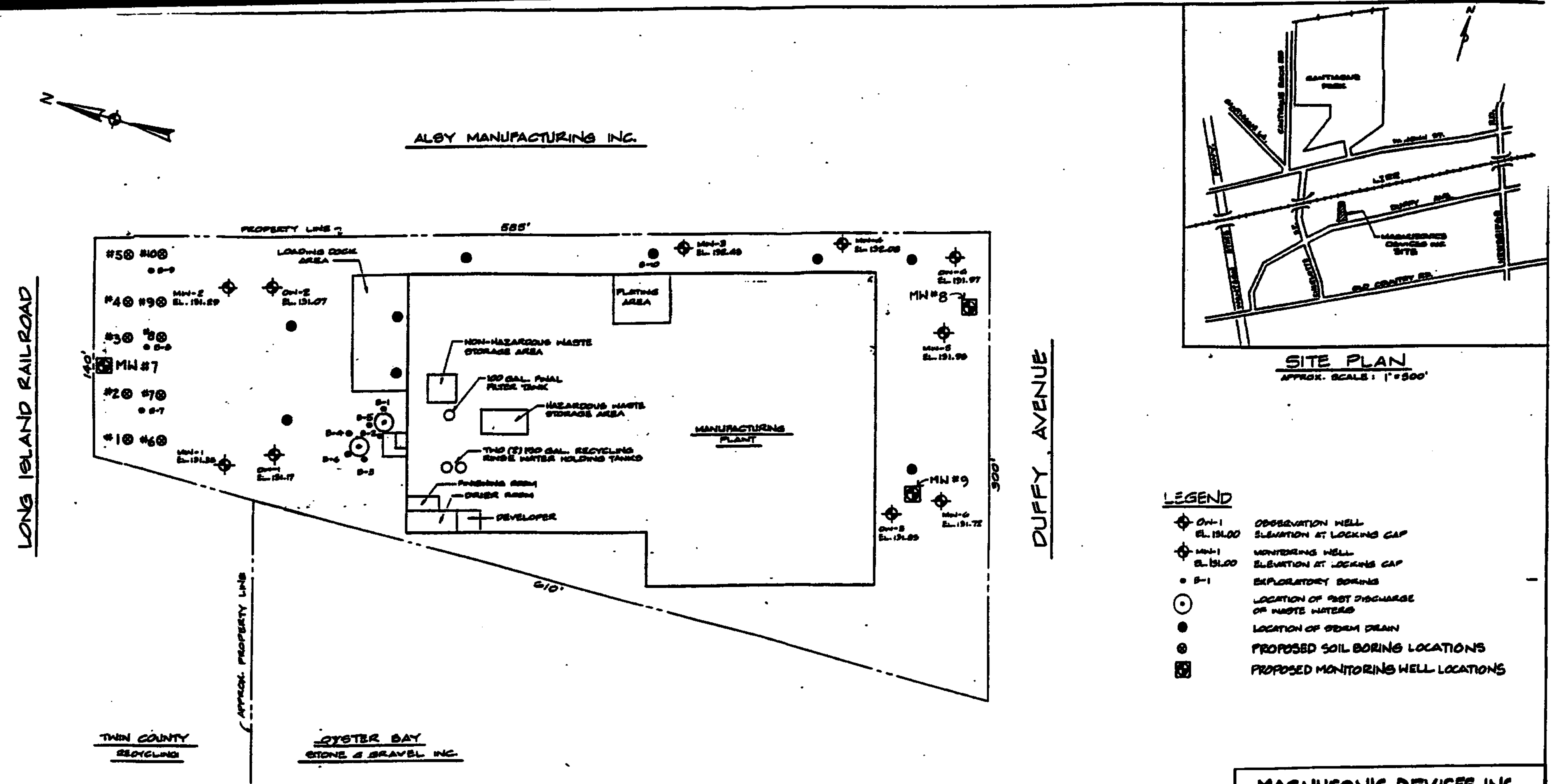
MAGNUSONIC DEVICES INC.
290 DUFFY AVE., HICKSVILLE, N.Y.

ON-SITE VEGETATIVE COVER MAP

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917

DATE | SCALE 1"=60' | DRAWING NO. 5.0



PROPOSED SOIL BORING & MONITORING WELL LOCATIONS

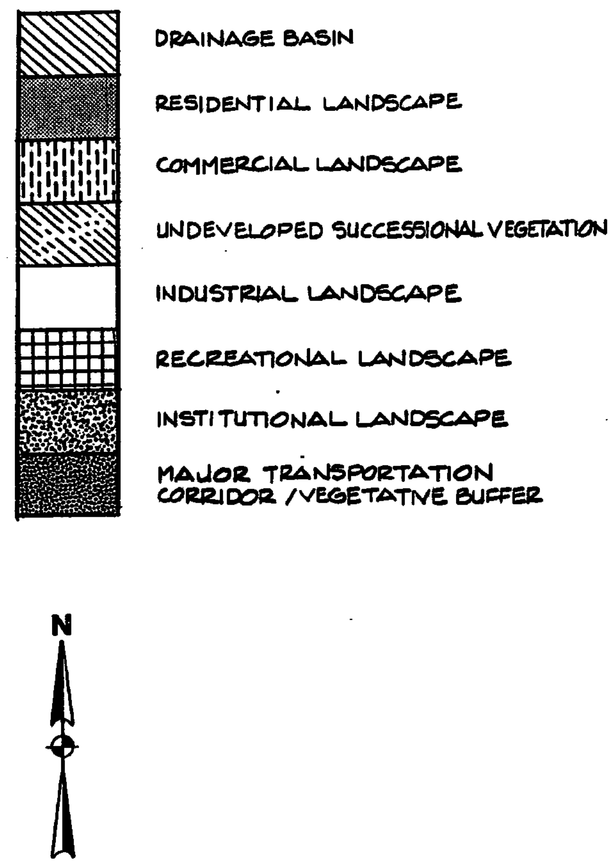
MAGNUSONIC DEVICES INC.
290 DUFFY AVE., HICKSVILLE, N.Y.

PROPOSED SOIL BORING & MONITORING WELL LOCATIONS

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD, GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX: (516) 549-1917

DATE	SCALE	DRAWING NO.
	1" = 60'	3.0

(96)



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MAGNUSONIC DEVICES, INC.
290 DUFFY AVE., HICKSVILLE, N.Y.

VEGETATIVE COVER
0.5 MILE RADIUS MAP

LIFE SUPPORT SCIENCES INC.
284 PULASKI ROAD
GREENLAWN, NEW YORK 11740
(516) 549-1900
FAX (516) 549-1917

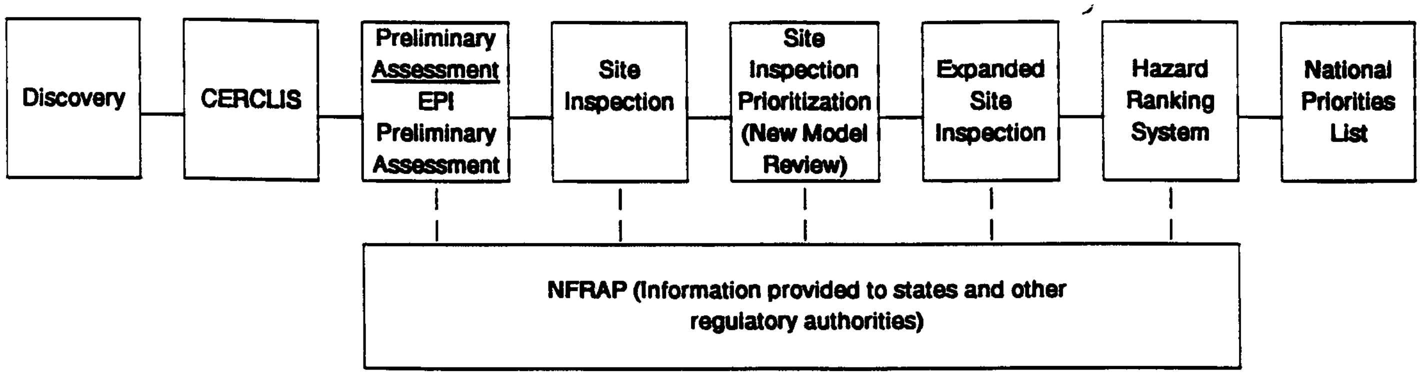
DATE	SCALE AS SHOWN	DRAWING NO. 5.1

ATTACHMENT 3

Review of Analytical Data

If previous analytical data are available, they should be reviewed for information which supports the design of the sampling and analysis program, tests site hypotheses, and documents the site score. The Site Investigation (SI) investigator should review all previous analytical data. While analytical data collected for other purposes may not meet SI objectives, site-specific analytical data are generally helpful in better understanding the nature of the problem at the site, regardless of data sources or data quality. The depth of the review depends on the overall quality and quantity of data, the intended use of the data, and whether they are representative of current site conditions and comparable to SI data. Determining whether available data can be applied as SI-generated data requires the professional judgement of an experienced reviewer. Both validated and non-validated analytical data may be available. Previous SI data will be validated and of CLP-quality. Non-validated data may contain false positive and false negatives, as well as quantitation, transcription, and calculation errors. If data of unknown or questionable quality are used for decision-making, the investigator should review all available information to assess the level of certainty associated with the data. If these data are used for HRS documentation, data validation will be necessary. The investigator should be able to determine the general quality of the data set by reviewing QC data for evaluation under the Superfund Program.

SUPERFUND SITE ASSESSMENT PROGRAM



SITE ASSESSMENT REPORTS

1. PRELIMINARY ASSESSMENT
   * Quick Review of Readily Accessible Records and Reports
   * Undertaken to Determine the Existence of a Problem and the Need for Further Action at a Site by Characterizing:
     - Magnitude of the Hazard
     - Source and Nature of the Release or Potential Release
     - Identification of Targets
   * Does Not Include Sample Collection
2. SITE INSPECTION
   * The Purpose of the Site Inspection is to:
     - Further Define and Characterize the Problem
     - Provide Data for the Hazard Ranking System (HRS) Scoring and Compute Initial Score
     - Identification of Targets
     - Determine the Necessity of Further Action
   * The Site Inspection Involves an On-Site Visit and Sampling (10+/- Samples)
   * A Site Inspection is not an Extent of Contamination Study
3. SITE INSPECTION PRIORITIZATION
   * Quick Review of Readily Accessible Records and Reports
   * Undertaken to Determine the Validity and Update Background Conditions Under the New HRS Model, and the Need for Further Action at a Site by Characterizing:
     - Magnitude of the Hazard
     - Source and Nature of the Release or Potential Release
   * Included On-Site Visits or Sample Collection as needed
     - Analyze Samples/Limited Analytical Resources
     - Account for Significant Safety Hazards On-Site
4. EXPANDED SITE INSPECTION

   A Follow-Up Inspection May Be Recommended After the SI To:
   * Gather Additional Data Necessary to Strengthen or Substantiate the Initial HRS Score
     - Geophysical Surveys
     - Installation of Groundwater Monitoring Wells
     - Additional Sampling